SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER

2. GOVT ACCESSION NO

3. RECIPIENT'S CATALOG NUMBER

4. ~~TITLE (and Subtitle)~~
The Armored and Mechanized Division Armored Cavalry Squadron.

5. ~~TYPE OF REPORT~~ & PERIOD COVERED
Final Report, 10 Jun 77

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)
Rozelle, H. Joseph, LTC, USA
/Rozelle/

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS
Student at the U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS
US Army Command and General Staff College
ATTN: ATSW-SE

12. ~~REPORT DATE~~
10 Jun 77

13. NUMBER OF PAGES
149

14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*
169p.

15. SECURITY CLASS. *(of this report)*
Unclassified

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*
Distribution unlimited

DDC
AUG 16 1977
A

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES
Master of Military Art and Science (MMAS) Thesis prepared at CGSC in partial fulfillment of the Masters Program requirements, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

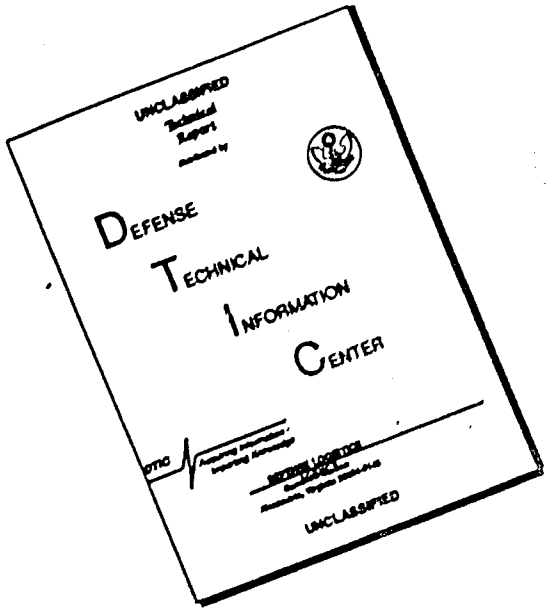
This study attempts to develop appropriate missions for the divisional armored cavalry squadron that are based upon the needs of its parent division, and to identify an organization and equipment configuration that will enable the armored cavalry squadron to perform these missions against our potential adversaries.

The potential adversaries are either the Soviet Union or armies

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

DISCLAIMER NOTICE



THIS DOCUMENT IS BEST QUALITY AVAILABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

trained by the Soviet Union, and the greatest threat is in Europe and the Middle East. In both areas U.S. forces and their allies would be faced with armies numerically superior to their own.

In order to properly oppose these forces an analysis of missions determined that the screen, delay, flank guard, movement to contact/zone reconnaissance, and the economy of force offense and defense were the basic missions to be performed. Other missions are conducted as part of or in the same manner as the other basic missions. The covering force mission includes the screen and delay.

Three type squadrons were selected for analysis; a light armor reconnaissance squadron, a heavy armor cavalry squadron and the current TOE squadron (modified). These squadrons were analyzed performing the required missions against Soviet forces they would meet in either Europe ~~of~~ or the Middle East.

The conclusions indicated that the traditional cavalry missions of reconnaissance, security, offense and defense are still required, that the air cavalry troop significantly increased the performance of any type squadron and that the heavy armor cavalry squadron with a modified air cavalry troop was the best over all squadron to perform the required missions.

THE ARMORED AND MECHANIZED DIVISION ARMORED CAVALRY SQUADRON

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

by

H. JOSEPH ROZELLE, MAJ, USA
B.B.A., University of San Diego, 1961

Fort Leavenworth, Kansas
1977

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of candidate Maj. H. Joseph Rozelle

Title of thesis The Armored and Mechanized Division Armored Cavalry Squadron

Approved by:

[signature], Research Advisor

[signature], Research Advisor

[signature], Research Advisor

[signature], Member, Consulting Faculty

Accepted this 16th day of May 1977 by [signature], Director, Master of Military Art and Science.

The opinions and conclusions expressed herein are those of the individual student author and do not necessarily represent the views of either the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the forgoing statement.)

ABSTRACT

This study attempts to develop appropriate missions for the divisional armored cavalry squadron that are based upon the needs of its parent division, and to identify an organization and equipment configuration that will enable the armored cavalry squadron to perform these missions against our potential adversaries.

The potential adversaries are either the Soviet Union or armies trained by the Soviet Union, and the greatest threat is in Europe and the Middle East. In both areas U.S. forces and their allies would be faced with armies numerically superior to their own.

In order to properly oppose these forces an analysis of missions determined that the screen, delay, flank guard, movement to contact/ zone reconnaissance, and the economy of force offense and defense were the basic missions to performed. Other missions are conducted as part of or in the same manner as the other basic missions. The covering force mission includes the screen and delay.

Three type squadrons were selected for analysis; a light armor reconnaissance squadron, a heavy armor cavalry squadron and the current TOE squadron (modified). These squadrons were analyzed performing the required missions against Soviet forces they would meet in either Europe or the Middle East.

The conclusions indicated that the traditional cavalry missions of reconnaissance, security, offense and defense are still required,

that the air cavalry troop significantly increased the performance of any type squadron and that the heavy armor cavalry squadron with a modified air cavalry troop was the best overall squadron to perform the required missions.

TABLE OF CONTENTS

Page

LIST OF ILLUSTRATIONS

Illustration Page

CHAPTER 1

INTRODUCTION

> "Far from the truth lay the antique assumption that man had fathered the weapon. The weapon, instead, had fathered man...And if all human istory from that date has turned on the development of superior weapons, then it is for very sound reason. It is for genetic necessity. We design and compete with our weapons as birds build distinctive nests."[1]

Man's superior weapon is mobility. For over four thousand years, the instrument of mobility, either flesh and blood or steel, has been the horse. The union of man and horse gave birth to cavalry, and cavalry has been the instrument of superiority in combat.

Is there a cavalryman whose heart does not skip a beat at hearing Garryowen, or seeing the red and white pennants rippling in the wind? Is not the cavalryman a super soldier, who sees and is not seen? Does he not kill, and fade away to kill again, and not be killed? Is not his role to strike at the decisive time and place on the battlefield, delivering a mortal blow to the enemy?

When military men get together, they frequently argue about the missions, employment and organization of the cavalry squadron. One group might defend reconnaissance and security as the primary role, while another will maintain that it should be another tank type, maneuver battalion, and another may even say that today's cavalry squadron is little more than a specialized unit with limited capabilities and limited missions. A consensus might be that its mobility is no longer superior to any other organization on the

battlefield, that it has lost its freedom of maneuver.

What is cavalry? What are its traditional and its modern roles? Perhaps the answer lies somewhere in between the modern and traditional roles, or perhaps there is no difference. Perhaps the cavalry in its traditional sense is obsolete. The latest ideas from our Army leadership are that cavalry is primarily a fighting force and should be equipped for that role. Unfortunatly we are not able to battle test tactics and combat organizations as we choose. Tactics and organizations must be evaluated theoretically, and recent theoretic fervor has brought about conclusions that may be open to questions. Military and civilian leadership is now making far-reaching decisions at a rapid pace, and hasty decisions could be costly. Today's battlefield lethality, changing technology and military budget restraints create problems that we must solve if we expect to be successful in future combat.

SCOPE

This study addresses the armored cavalry squadron of the armored and mechanized infantry divisions. The mission of the divisional squadron may differ significantly from those of the armored cavalry regiment. Where the corps armored cavalry regiment is primarily designed to operate independently, the divisional cavalry squadron is an integral part of the division and is dependent upon the division. This study considers missions appropriate to the armored and mechanized infantry division armored cavalry squadron. It may enable you to draw conclusions that apply to all cavalry units. The study will consider personnel

and equipment presently in, or planned for the squadron, and its parent division's personnel and equipment.

STATEMENT OF THE PROBLEM

There is doubt that the divisional armored cavalry squadron is presently organized or equipped to perform potential missions, or that its missions are appropriate to its potential. The problem is: To develop appropriate missions for the divisional armored cavalry squadron that are based upon the needs of its parent division, and to identify an organization and equipment configuration that will enable it to perform these missions against our potential adversaries.

ASSUMPTIONS

Our present over all mobility is equal to, or less than that of the Soviet Army and its allies.

The armored and mechanized infantry division will be employed primarily against Soviets or Soviet trained forces in either Europe or the Middle East.

The troop strength of the U.S. Army will remain relatively stable in the immediate future.

DEFINITIONS

Cavalry can be defined as: (1) Soldiers that are horse or vehicle mounted. (2) A specialized organization designed for reconnaissance and security. (3) A mounted combat arm capable of using mobility and combined arms capability to operate over widely

dispersed areas in a wide variety of roles, encompassing all types of air and ground combat activities.

Mobility is movement. Superior mobility is defined as the ability to outmaneuver an opponent through speed and tactics. It enables the commander to inflict substantial damage on an enemy force by delivering fire and shock effect at the right time and place. It can be used in attack, defense, or delay to secure a force from detection or damage, or it can be used to detect and report the location or intention of an enemy force. Mobility can be by foot, ground vehicle, or aircraft.

Fire, or firepower, is the ability to place weapons fire on a target.

Shock is the use of mobility and fire to disrupt an enemy force by surprise and dynamic action where and when least expected.

Freedom of maneuver is freedom of action, or the ability to move over the battlefield without being effectively hindered by an enemy force.

A delaying action trades space for time. In a rearward movement, the delaying force attempts to cause the advancing force to think it has met the main force. It compels the advancing force to deploy repeatedly, echelon its artillery, and take losses, while the delaying force avoids loss of its freedom of maneuver.

METHODS

This study will take a logical approach to solving the problem because a data analysis would be impractical and would not measure

intangible combat multipliers. The subject of cavalry is a broad area, and while starting with a broad topic this study will narrow to a more specific examination of the armored and mechanized infantry division armored cavalry squadron.

The study will begin with a short review of cavalry history showing that there have been historic trends and cycles in the employment of cavalry, as technology and tactical need have forced these cycles and trends. The conclusions drawn from this history will be applicable to the armored and mechanized infantry division armored cavalry squadron.

Chapter Three will examine the Army of the Soviet Union. It will thus narrow the study to a specific opponent force. It will look at this force in offensive, defensive and retrograde operations to determine strengths and weaknesses in its system. It may also indicate principles of employment, and equipment configurations that are adaptable to our own forces.

In Chapter Four we will inspect our own employment principles of attack, defense, and delay, organization and equipment. I will select three type cavalry squadron organizations for discussion in Chapter Five.

Final conclusions will not be drawn during the examination of the two armies but will be accomplished by an evolutionary process during the discussion chapter. I will then determine the strengths and weaknesses of the different organizations and equipment combinations by comparing ours against Soviet tactics and our own needs.

The recommendations will be a refinment of the conclusions.

The study will stress the use of equipment and personnel presently available within the armored and mechanized infantry division and its armored cavalry squadron. The study may, however, determine that personnel and equipmel not presently available is required.

CHAPTER 1

FOOTNOTE

[1]Robert Ardrey. African Genesis. (New York, N.Y.: Dell, 1961), p. 31.

CHAPTER 2

EVOLUTION OF CAVALRY

INTRODUCTION

We emphaisze the use of historical examples, believing that we should learn from the past. Do we learn from the past, or do we only reinforce our prejudices? It has been difficult not to choose historical incidents that prove my own beliefs. This study of history will attempt to give insight into the development of cavalry and not try to enforce any personal biases. It will attempt to show that throughout history some soldiers have perceived the need to change and others have not. You might think some of the historians were speaking today. This review will also attempt to provide a base for further research.

HISTORY

It is hard to determine cavalry's exact beginning, but it is considered to be the first mounting of soldiers on a horse or the horse drawn chariot. Some historians believe the Chinese first used horse mounted soldiers as early as 2600 B.C.[1]

The fighting at the siege of Troy had warrior chiefs called cavalry, or horsemen, in the front line. The worst soldiers were placed in the second line, while the phalanx of foot soldiers, the mainstay, formed the rear or third line. On approaching the enemy, the chiefs tried to first wound or kill their opponents by throwing javelins.

Upon coming closer, they struck with the long spear from the chariot. They then dismounted, and the real struggle took place on foot with the second line and the phalanx entering into the battle.[2] There were a number of reasons for this method of using the chariot: (1) Poor horsemanship, (2) A means of delivering shock action, (3) A means of retreat or evacuation of the wounded chief.

The Greek-Persian battles demonstrated that an exclusively dismounted army was highly susceptible to the superior mobility and flexibility of the horse soldier. When the Greeks marched through the Isthmus to attack Mardonius they had no cavalry with them. The Persians, and their allies the Thebans, had large numbers of cavalry troops. The Persians charged the Greek lines with squadrons of cavalry and inflicted numerous casualties.[3]

One night the Persian cavalry was sent out to interdict Greek supply lines. The cavalrymen came upon a resupply convoy of 500 animals carrying provisions from the Peloponesus to the Grecian army. The Persians attacked, killed most of the animals and the escort, and carried the supplies back to their own lines.[4] This may well be the first time cavalry was used to conduct long range operations against an enemy's lines of communications.

The battle of Plataea was a Greek victory, however, the Persian cavalry covered their retreat and kept the Persians from suffering a total defeat. The Persians obviously realized that the mobility of their cavalry could force the Greeks into battles of attrition while the main body of their troops escaped.[5]

Alexander learned from the losses suffered by the earlier

Greek armies and organized his own cavalry. In the battle of Arbela, 331 B.C, Alexander led 7000 of the Macedonian cavalry into a gap in the Persian army and by this daring maneuver routed the enemy. Alexander's cavalry was credited with being the decisive element in his victory.[6] He had a la ge force of cavalry. It consisted of heavy cavalry, which fought at close quarters with swords and lances, and light cavalry, which stood back harassing the enemy by shooting bows and arrows and throwing javelins.[7]

The effectiveness of a mobile force, using the principles of speed and shock, was recognized by Hannibal. During the battle of Trebbia, 218 B.C., and Cannae, 216 B.C., his Carthaginian cavalry, "completely dislocated the Roman legions by rear attack."[8] The Romans had not learned from the Persian-Greek wars, but the Carthaginians had.

The cause of these Roman defeats was perceived by Scipio Africanus, who organized and trained a Roman cavalry force. This force beat Hasdrubal, at Llipa, in 205 B.C., by double envelopment carried out by cavalry and infantry. He then defeated Hannibal at Zama, in 202 B.C, by fixing him in front with infantry, and striking at his rear with cavalry.[9]

Improvements in equipment came more slowly than did the methods of employing forces. In 306 A.D saddles were introduced allowing the soldier to stabilize himself on the horse. Horseshoes that gave the horse the ability to move over more diverse types of terrain with less fear of injury were developed in 480 A.D. Stirrups came into existance in the 5th century A.D.

They enable the horseman to remain on the horse while fighting or firing, even when heavily engaged. It is hard to believe, in our day of rapid technological change, that such simple refinements took three thousand years to develop.

Later developments included the use of a primitive firearm by the mounted soldier, but the firearm was not very accurate. Genghis Khan introduced the artillery fire preparation prior to the cavalry attack, and additional shock to the battlefield.

The elitism of cavalry came about during the middle ages, as cavalry was the only efficient fighting force. It consisted mostly of members of the nobility who could afford horses and armor. The serfs were relegated to infantry and support roles. We had finally come to a time in history where weapons systems had become so expensive that their use became limited.

Mounted fighting reached a low ebb during this time. The horsemen wore such heavy armor that the charge was made at the trot, and most casualties were caused by the armor rather than enemy action:

> "The cavalry of this epoch, literally ironclad, had reduced mobility to a minimum, and in seeking protection from his foes had well-nigh, in return, deprived himself of the power of effecting injury to his enemies. Invincible, when opposed to the miserable, unarmored foot troops of his time, he was unable to penetrate the armor of an opposing cavalier, and warfare between men-at-arms had become almost bloodless...At the Italian battle of Zagonari, in 1423, the only men who lost their lives were three knights who having fallen from their horses, were drowned in a morass. At Agincourt, some of the French knights, being unhorsed and unable to rise from the mud, were ridden over and suffocated."[10]

In an effort to reduce casualties and protect the weapon, they had actually made it more vulnerable. Any advantage in mobility was lost. Wars became exercises in maneuver, political and financial attrition, and little action.

An old concept was reaffirmed when, "Marshal de Brissac, 1584-1606, formed a corps of mounted infantry, called 'dragoons' trained to fight either on horseback or on foot,"[11] and when Charles XII of Sweden, "abolished all use of defensive armor and the use of firearms on horseback, and armed his cavalry with the long straight sword, especially adapted to thrusting. He taught his cavalry to charge the enemy at full speed."[12] These two leaders recognized that battles could only be won by decisive combat. They understood that mobility, shock and flexibility had to be returned to the battlefield.

U S. Cavalry tradition was established by a Virginian, Harry Lee, during the Revolutionary War. He was nicknamed "Light Horse" Harry Lee, because he used light horses and lightly armed troops. His cavalry was used in what we now call an economy of force role, because of the numerical inferiority of the colonial troops to their opponents. Lee's cavalry were masters of reconnaissance, delay, trap, and charge, operating both mounted and dismounted. Because of Lee's skill, the expression, "you never see a dead cavalryman," became common.

Napoleon's use of cavalry was impressive. "He knew how to turn the scale of victory by pouring torrents of well-drilled horsemen upon a whole wing of an opposing army, to sweep it from

the field by the mere force of numbers and impetuosity.[13] His cavalry had multiple tasks. They screened his main forces from the enemy while keeping him constantly aware of the enemy's locations and intentions. Using the lance and firing from the horse in the charge, they created the necessary fire and shock to cause the enemy lines to break. It was not until he met the irregular tactics of the Russian Cossacks, who stripped away his reconnaissance screen, that he was rendered helpless. This led to his ultimate defeat. These battles might be considered classic, since the rigid tactical formations used by the French cavalry were no match for the Cossack irregular maneuver called the "lava" that allowed them to keep the initiative. They exploited the weaknesses of the rigid French battle alignments and attacked relentlessly. The lava:

> "...Produced an impression of baffling incoherence. General Moran who took part in almost every one of Napoleon's campaigns commented on Cossacks: "These savage riders have no formations, no alignments, and do not present that precise regularity in movements which is so highly respected in our army. What a beautiful sight our cavalry presented when, glistening in the rays of summer sunshine, it proudly deployed its slender lines on the shores of Niemn! And how sad it is to think that these masterly evolutions, which tired out the horses, proved to be completely useless against these Cossacks whom everybody despised beforehand, but who, nevertheless, accomplished more than any other cavalry.'
>
> And another of Napoleon's veterans, de Braque says: 'Some officers, especially those without battle experience, make a point of speaking about Cossacks contemptuously. Don't believe them. Ask Sould, Gerard; ask any seasoned campaigner. They will tell you that the light cavalry, which surrounds the enemy with an impenetrable veil of vigilance, which exhausts him, which always strikes, and almost invariably evades the counter blow, fulfills every goal that any light cavalry should strive to accomplish."[14]

The introduction of the rifled barrel made infantry and artillery more deadly at increased ranges. This innovation would eventually force a reconsideration of tactical principles. Most armies would have to learn this for themselves in combat. The charge of the light brigade at Balaklava, although courageous, reconfirmed the lethality of the rifle and artillery against a cavalry charge of massed and rigid formations.

During the American Civil War, the Southern cavalry was more effective than the Northern cavalry because of the Southerner's familiarity with the horse and firearm. Perhaps more importantly, they were more innovative and quicker to learn. They realized the vulnerability of a cavalry charge against modern weaponry. MG John H. Morgan, a Kentuckian, was the first to realize the value of mounted riflemen who could move rapidly and fight either on foot or mounted as the occasion demanded.[15] General Morgan had simply adopted the technique of Marshal de Brissac's "dragoons."

Long into the war the Northern cavalry persisted in its use of the saber in the charge, while the Southern cavalry favored the rifle and pistol.

> "So strong was this feeling in the West at the outset of the war, that the hastily raised and imperfectly equipped Southern cavalry, armed as they often were at first simply with double barreled fowling pieces loaded with slugs, would charge at speed at a line of hostile cavalry, firing both barrels into the enemy's faces, and would then dash through, striking with the butts of their guns."[16]

The South was able to use its cavalry effectively throughout the war, with some exceptions e.g. Stewart's extended raid at

Gettysburg, by making long marches to conduct raids, conducting tactical reconnaissance, and actions in the enemy rear. Although the Northern cavalry made significant improvements in tactical employment during the latter stages of the war, it was only by using masses of cavalry and infantry, that the North could crush the Southern army.

After the Civil War, the U.S. cavalry was sent out to tame the Western frontier, subdue the Indians and be forgotten. The Western American Indians were perhaps some of history's greatest light cavalry. They were excellent in the ambush, trap, raid and delay. Their reconnaissance techniques were extraordinary and U.S. cavalry units found that it was highly beneficial to use Indians as their own scouts.

The cavalryman of the Indian Wars faced incredible hardships for low pay and little recognition. It was a war of skirmishes and attrition, long marches and small patrols often led by a Lieutenant or a Sergeant.[17] It was not unusual for them to be forced to eat captured Indian horses or their own troop horses.

General George Crook's method of fighting the Indian was the relentless pursuit and harassment until he was too tired to fight. Against Crazy Horse:

> "The Sioux skirmished against Crook's column and lost four, wounding three of the Army in the process. It wasn't a big battle, it wasn't the wipe out that had been hoped for; but it fell right into Crook's standard pattern of how to force hostiles off the war path; get on their tail, stay there, destroy their winter supplies and they will surrender."18

This was typical of Crook's method of fighting, although the battle

was nothing more than a skirmish. It was also a classic example of the type of action cavalry could fight, the constant pursuit and harassment.

Two defeats, General Custer's and that of an obscure Captain named Fetterman, proved once more that mobile forces fighting in a place of their own choosing will destroy forces that fail to secure themselves, even if that force is cavalry.

European tacticians failed to profit from the lessons of the American Civil War. LTG. Frederick von Bernhardi, commander of the German Seventh Division, in opposition to current thought, wrote in 1902:

> "The increased power of weapons in use offers greater advantages to the local defense. The prospects of success in the direct frontal attack of strong positions have diminished enormously. The assailant, therefore, no longer able to succeed by frontal attack, is compelled to endeavor to work around the enemy's flanks, and thus exercise pressure upon his communications."19

It appeared that current thinking still favored the direct frontal attack even though forward thinking tacticians like von Bernhardi could see the problems.

In World War I, after the German offensive halted, and the battle lines stabilized, tactics centered around the use of massed artillery and massed forces making frontal attacks.

Horse cavalry was employed in World War I with some successes. There were occasions where cavalry charges to the rear of a retreating force, or against the flank of the enemy, as part of a

counterattack were beyond all expectation. When properly employed, the cavalry had significant value. In most instances however, the horse soldier, unsupported by a combined arms team, was over-matched against the machinegun, rifle, and massed artillery. The tank made its first appearance and showed grea promise in overcomming the effects of artillery and machinegun fire. World War I signalled a somewhat premature end of horse cavalry. Marshal Foch stated prophetically:

> "The next war will begin as the last war ended--WITH MOVEMENT."[20]

After more than four thousand years, the horse seemed to be useless as a combat multiplier. World War I was the beginning of the age of the motorized vehicle, the airplane and the tank, but it would take the U.S. Army a long time to realize the implications of this war.

Following World War I there was much controversy over horse cavalry. Many nations converted to motorized reconnaissance units and kept only small horse cavalry units for ceremonial purposes. The emphasis was now placed on large armored forces that would perform the traditional cavalry roles. The controversy continued in the U.S. Army until the beginning of World War II. Maj. Robert W. Grow, who was later to become General, wrote in 1937:

> "One of the principal reasons for the success of some of the great armies of former times is again apparent. From one-sixth to one-fourth of their fighting strength was vested in highly mobile units. Those not only served to cover the strategic and tactical maneuver of the main force but also exerted decisive influence

> in battle when at the critical time and place their highly mobile fighting power was employed to decide the issue. The highly mobile fighting element of an army is its cavalry...The application of mechanization to warfare has not altered missions, but its application to cavalry has materially assisted the latter to carry out its missions. We hear of "moto-mechanized" divisions, "mobile" divisions, the "Panzer Corps," etc. It seems to be the fashion of the times to apply a mechanical name to these units. But have new missions been developed for them? Not at all. They are designed to carry out cavalry missions...
>
> Reconnaissance and its attendant duties are often of primary importance for a time and are rightly delegated to cavalry but when the critical battle is entered upon, the skillful commander has his cavalry in hand for its primary mission, to fight."[21]

The last cavalry chief MG John K. Herr spoke before a Congressional committee in 1939, and maintained that horse cavalry had "stood the acid test of war," whereas the motor elements advocated by some to replace it had not. On the role of cavalry, General Herr declared that those "who wish to reduce cavalry to a purely reconnaissance arm, are entirely wrong, unless reconnaissance is the only mission which cavalry can perform." To Herr, reconnaissance was important to cavalry, but was not its primary mission. "While cavalry must fight in carrying out its mission of reconnaissance, pursuit and covering," he reasoned, "it must also fight in cooperation with the other ground arms to further the accomplishment of the main mission."[22] This was later proven to be essentially true by the Russian cavalry and composite U.S. units that were organized during the war.

The German Blitzkrieg of Europe brought about some accelerated organizational change within the U.S. cavalry. Most units were converted to armored forces, then armored divisions, or reconnaissance units. Although all of these forces were controlled by the

Cavalry Branch, they were not all cavalry. The new "armor officers" did not all share the same heritage. Armored forces that were employed in some of the traditional cavalry functions were able to win numerous battles during the war. Actual cavalry employment by the U.S. Army was limited.

The majority of cavalry missions were defensive missions, defensive combat, delaying, and holding of key terrain. Their use in the offense was only 10 percent of the total missions. Reconnaissance missions were only 3 percent of the total.[23] (Cavalry employment by other armies show that this might have been a mistake.)

"Marshal Zhukov, generally regarded as the outstanding Russian general of World War II is quoted as having said, that one of the important reasons for the defeat of the German armies in their attack against Russia was that they had no cavalry."[24] General Hawkins, the author of this article, makes some other very strong statements in regard to this:

> "The Germans failed to take Moscow in 1941 largely because they lacked enough cavalry to protect the flanks of their spearheads against the attacks of the Russian cavalry. The subsequent German disasters...were due in large measure to the activities of the Russian tank-cavalry teams and the lack of German cavalry which might have neutralized their efforts...
>
> During the tremendous sweeps made by our armored forces through France, Belgium and Germany in 1945, the Germans constantly were being caught by surprise because they were without cavalry...If we had been fighting cavalry-minded Russians the situation would have been far different.
>
> It is not pleasant to contemplate what the Germans could have done if they had had a large force of cavalry available when they broke through our lines in the Belgium Bulge."[25]

Although Marshal Zhukov did not specifically mention horse cavalry it is made quite clear in a series of articles in the 1944-1945 issues of The Cavalry Journal, highlighting the successes of the Soviet Army's tank-horse cavalry team, that he was speaking of horse cavalry. General Hawkins also does not specifically mention horses but his comments from the same article as the Zhukov quote, implies horse cavalry. I feel that the message could be applied to mechanized cavalry also. To me, it seems, that the particular error of the German Army was not employing cavalry, and that the type of cavalry was incidental. I think, however, that Zhukov and Hawkins would say that they meant both employment and equipment.

Reflecting on the use of cavalry in World War II, numerous opinions were expressed by military leaders and theorists. Some of these comments apply equally to horse and mechanized units, some do not. The following are comments that I felt significant for consideration:

> "The principle of Soviet tactics in the employment of cavalry is not to be influenced by the respective merits of horse and motor but by their aggregate merits...
> In tanks, cavalry has acquired a steel shield with which it can cover itself during battle and become a powerful battering ram for breaking and destroying the enemy's combat formations."[26]

> "Along the mountainous Fifth Army front in Italy, where men deal with realities, not theory, mounted reconnaissance troops of the 3d Infantry Division, under the direction of cavalrymen, have made a dramatic and valuable contribution to the drive on Rome.
> More horses and cavalrymen are joining other units of the Fifth Army. The explanation is simple: A motorized vehicle is no better than its terrain; a horse is."[27]

Field Marshal Rommel was to comment in his writings:

> "The fact of the mechanization of all human existence is equally valid for the science of war. The tactical leader of the future, who will decide the battle--for the main emphasis of future battles will be on the tactical distruction of the enemy's fighting power--will need not only mental gifts of a high order, but also great strength of character if he is to be a match for his task. Because of the great tactical possibilities which motorization offers it will in future be impossible to make more than a rough forcast of the course of a battle."[28]

When General Patton returned from Europe, he spoke to the War Department regarding the use of horse cavalry:

> "If we'd had a brigade or a division of horse cavalry in Tunisia and Sicily, the bag of Germans would have been bigger because cavalry can conduct a pursuit faster than infantry. He added that it was simply a question of speed and mobility. As good as U.S. armor was, the General continued, the war still could have used some horses."[29]

Amrom H. Katz, writing for the Rand Corporation in 1963, said:

> "Now what about reconnaissance and World War II? Well, we did have a bunch of pretty smart people involved. If we examine the course of that war we find that we entered the war with a set of aircraft, a kind of training method, some doctrine, some dogma, some principles, some practice, some organization, and some understanding or preconception of how reconnaissance was to be employed. <u>Not a single one of these elements survived the war: neither equipment, nor practice, nor theory, nor principles, nor aircraft...</u>
>
> I am slowly, and with faltering steps, leading up to the suggestion that what we need above all in any future limited war is improvisation on the spot. Does this mean we should do no thinking until we get there? Of course not. But most of the kind of thinking I have seen is so structured and so rigid that if we run up against situations that require changes we will be unable to make them, having been locked in by a belief in the divine origin of the plans and programs and studies which we have been swallowing and in which we have been wallowing for low these many years."[30]

The conclusion of World War II found enemy armed forces destroyed and the beginning of an almost total disarmament of the allied powers, except the Soviet Army. The Soviet Union continued to build its forces and embarked on a program of territorial expansion. Soviet expansionism caused gra[illegible] concern among many nations, which would do little more than rely on the United States to deter the Soviets with the threat of massive nuclear retaliation.

During the disarmament period, U.S. cavalry units consisted primarily of divisional reconnaissance battalions and constabulary forces until four armored cavalry regiments were organized in 1948. The invasion of South Korea by North Korea stimulated a partial rearmament and mobilization of both the United States and its allies, and the strengthening of the new North Atlantic Treaty Organization alliance. A fifth armored cavalry regiment was organized in 1951. No armored cavalry regiments were deployed to Korea. The only U.S. cavalry units to participate were the divisional reconnaissance battalions. In retrospect this might be questioned, as the North Koreans showed that mounted warfare was effective.

Moralizing on the Korean War, General James M. Gavin wrote in 1954, that cavalry use or misuse was a significant cause of failure in some combat actions. He particularly felt that the first U.S. force introduced into Korea, "Task Force Smith," should have been a cavalry force. He also reasoned that General Walker made a fundamental error by his failure to use some type of cavalry or reconnaissance unit to secure his flanks, and that this error caused his encirclement.

General Gavin went on to say:

> "As an enthusiastic supporter of our cavalry arm, I am convinced that we will never win another war without it, and that without it we may very likely lose."[31]

He was not in this context necessarily speaking of heavily armored or horse cavalry units but o highly mobile, mixed air-ground and airmobile teams.

In 1955 the idea of airmobile forces and ground forces working as an air ground team was tested. The test organization, called "Sky Cav," consisted of air and ground reconnaissance teams working together. The results of this test were very encouraging. "By late 1957 the feasibility of armed helicopters had been accepted by the Department of the Army, and a third dimension was added to the Army battlefield."[32]

Vietnam was a small war in terms of operational area, and it was an unconventional war. Since it oriented on enemy forces rather than on retention of terrain, it could almost be called a cavalry war. It was a time of innovation and experimentation in the use of mobile forces, and cavalry fought in numerous configurations; mounted, dismounted, and airmobile. Regardless of how they were employed, they still performed their normal missions, reconnaissance, security, and economy of force. The most far reaching innovation was the successful use of the air-ground cavalry team, proving that the concept was valid. Within a short time, the enemy could be found and mobile forces inserted by ground and air to exploit the intelligence provided by the aerial reconnaissance. Another experiment showed that

the attack helicopter could kill armor by firing wire-guided missiles. This experiment later evolved into a system where aero scouts, flying low and undetected, could find targets for the attack helicopers.

Developments since Vietnam have been numerous and controversial. They are the primary reason for thi study.

CONCLUSION

Later discussion or research may prove or disprove some or all of the following conclusions.

Past tacticians have often misused their mounted forces or have failed to recognize and adjust to changing situations. It would appear that these tacticians, at some time in the development of their principles, became too inflexible to adjust to changing situations. It is unreasonable to continue with one tactic simply because it was successful before, or to not adjust to changes in the situation.

Traditional cavalry missions have been: (1) Offensive-frontal flank and rear attacks, counterattacks, raids, exploitation and pursuit; (2) Security-reconnaissance and protection; (3) Defensive-delay and holding of terrain; (4) and Economy of force, in which cavalry is used in either the offense or defensive roles to conserve other main force units. The reconnaissance in force, a combination of offensive and reconnaissance missions, has often been employed.

Offensive operations have historically been the primary missions of cavalry.

Reconnaissance has always been an accepted and valuable, but frequently neglected, use of cavalry.

Cavalry has been used defensively to hold terrain, but has never been organized for a static defense. It is better employed as a delay force or as a counterattack force.

In all missions, cavalry performed best when fighting both mounted and dismounted.

Horse cavalry is not necessarily obsolete. Horse cavalry was successfully employed in the World War II campaigns of Italy, Russia, Burma, China, and the South Pacific. Since the horse is particularly suited for mountains and other terrain untrafficable for motorized vehicles, one might imagine numerous uses for horse cavalry in the Korean War, Vietnam, and on other potential battlefields.

The air-ground cavalry team as a refinement or modernization of the cavalry tactic offers nearly unlimited opportunity. It is best used as a mutually supporting team, however, air and ground elements can, when necessary, operate independeltly.

The Russian cavalry tactic called "lave," has merit and should be given further consideration.

CHAPTER 2

FOOTNOTES

[1]Col. George T. Denison. History Of Cavalry. (London: Macmillan, 1913), p. 5.

[2]Denison. pp. 3-4.

[3]Denison. p. 22.

[4]Ibid

[5]Denison. p. 1.

[6]Denison. p. 17.

[7]U.S. Army Cavalry School. Cavalry Combat. (Harrisburg: The Telegraph Press, 1937), p. 1.

[8]U.S. Army Cavalry School. p. 2.

[9]U.S. Army Cavalry School. p. 3.

[10]U.S. Army Cavalry School. p. 4.

[11]Ibid

[12]Denison. p. 296.

[13]U.S. Army Cavalry School. p. 4.

[14]Nicholas Corotneff. "The Tank-Cavalry Team, A Study in Tactical Development." The Cavalry Journal. (LIII. No. 1. 1945), pp. 16-18.

[15]Denison. p. 360.

[16]Denison. p. 361.

[17]Richard Wormser. The Yellow Legs, The Story of the United States Cavalry. (Garden City, N.Y.: Doubleday, 1966), p. 3.

[18]Wormser. p. 361.

[19]LTG Frederick von Bernhardi. Cavalry in Future Wars, 2d Ed. (London: John Murray, 1909), p. 43.

[20]U.S. Army Cavalry School. p. 507.

[21]Maj Robert W. Grow. "Twenty Years of Evolution in American Cavalry Equipment." The Cavalry Journal. (XLVI. No. 2. 1937), pp. 127-129.

[22]Mary Lee Stubbs, Stanley Russell Connor, and Janice E. McKinney. Armor-Cavalry, Part II. (Washington D.C.: U.S. Government Printing Office, 1972), p. 70.

[23]Stubbs, Connor, and Mckinney. p. 73.

[24]BG H.S. Hawkins. "General Hawkins' Notes: The Germans Had No Cavalry." The Cavalry Journal. (LIV. No. 4. 1945), pp. 42-43.

[25]Ibid

[26]Col V. Tereschenko. "Tank-Cavalry Tactics." The Cavalry Journal. (LIII. No. 2. 1944), p. 3.

[27]TSgt Robert Geake. "Beyond the Jeep-Line in Italy." The Cavalry Journal. (LIII. No. 1. 1944), p. 3.

[28]Field Marshal Erwin Rommel. The Rommel Papers. Edited by B.H. Liddel Hart. (New York: Harcourt Brace and Company, 1953), p. 517.

[29]Hawkins. p. 43.

[30]Amrom H. Katz. Some Rumblings and Musings on Tactical Reconnaissance. (Santa Monica, Calif.: The Rand Corporation, 1963), pp. 3-5.

[31]MG James M. Gavin. "Cavalry, and I Don't Mean Horses." Harpers Magazine. (April 1954), p. 54.

[32]Stubbs, Connor, and Mckinney. p. 83.

CHAPTER 3

THE ARMY OF THE SOVIET UNION

INTRODUCTION

The Soviet Army was born in turmoil, the product of a revolution, born to fight a counter-revolution. The Bolsheviks destroyed the Imperial Army, then drew upon it to survive. The first Commander in Chief of the Red Army was ex-Imperial Army Colonel Vatsetis, and many of the Red Army officers were formed Imperial Army officers.[1]

Today, the Soviet Army maintains the Imperial traditions of Peter the Great and Marshal Suvarov. Peter the Great taught the importance of these principles:

> "(1) An acute appraisal of a situation;
> (2) The importance of preparation;
> (3) Faith in the virtues of manoeuver."[2]

and Marshal Suvarov believed in:

> "(1) Quick Grasp. This means the power of solving swiftly and well, any kind of problem likely to arise...
> (2) Speed. To impose one's will on the enemy it is necessary to surprise him...Surprise is obtained above all by speed--speed in conception and execution.
> (3) Shock. This is the decisive act in any battle and the one that determines the issue. None but troops determined to meet the enemy in hand-to-hand fighting are capable of winning the battle..."[3]

Modern tradition comes from Marshals Konev and Zhukov who, during the "Great Patriotic War," practiced the principles of Suvarov.

CONSIDERATIONS AND CAPABILITIES

In any study of the Soviet Army, there are factors for consideration and questions to be answered. These factors and questions

are significant: (1) The present disposition of North Atlantic Treaty Organization (NATO), and Warsaw Treaty Organization (WTO) armies and and divisions; (2) The conditions of the attack, surprise or extensive preparations; (3) The locations of reinforcements; (4) The location of the main and supporting attack; (5) The amount of warning time available to NATO forces; (6) The relative state of the readiness of WTO and NATO force equipment and personnel; (7) The relative willingness of NATO and WTO forces to fight, and (8) The use of nuclear or chemical weapons in either a first strike or retaliatory strike.

In the Middle East we must consider the geographic location, opponent forces available, and the reinforcement or nonreinforcement by the Soviet Union. Questions that should be answered: (1) If we interfere, will they interfere? (2) If both sides interfere in the Middle East, will it mean a second front in Europe? (3) What would be the impact of a war on two fronts for both sides?

During the latest Middle East War, the threat of Soviet intervention existed and there were reports that as many as seven Soviet airborne divisions were alerted for possible employment in either Syria or Egypt.

> "...In the latest Middle East War, the USSR apparently came closer to introducing an intervention force into a non-contigous area than has ever been the case in the past. With Soviet capabilities for transporting and maintaining such forces still growing, the temptation to exercise these capabilities in the furtherance of Soviet aims may also increase.[5]

The Soviet Army presently has 111 motorized rifle divisions, 50 tank divisions and 7 airborne divisions. Soviet divisions are

classified as: Category I, between three-quarters and full strength; Category II, between half and three-quarters strength; Category III, about one-third strength, probably with complete but obsolete TOE quantities of equipment.[6] Perhaps the great quantity of Soviet military units can be explained in this way:

> "...Soviet experience during the Great Patriotic War which, according to one prominent Soviet military writer, proved, 'that superiority in numbers of troops always acted as one of the most important premises for victory over the enemy.' Indeed, Soviet doctrinal literature is replete with detailed force ratio and troop-density analysis drawn from the Second World War that are offered as evidence to support continuing emphasis on quantitative preponderance."[7]

Deployment of Soviet divisions are: (1) Central and Eastern Europe, 31 divisions; East Germany, 20 (10 tank); Poland 2 tank divisions; Hungary 4 divisions (2 tank); Czechoslovakia 5 divisions (2 tank); all of these divisions are Category I and include 9000 medium and heavy tanks; (2) European USSR, 64 divisions, about 23 tank, and are probably evenly divided between Category II and Category III.[8]

Major Warsaw Pact force numbers are:

Now Available Div. Equivalents	North and Central Europe		Southern Europe	
	Warsaw Pact	(of which USSR)	Warsaw Pact	(of which USSR)
Armored	31	19	6	3
Infantry, mech and airborne	36	21	27	7

The strength in main battle tanks in operational service are: Warsaw Pact, 26,500 (13,750 Soviet).[10]

All of the Soviet divisions located in East Germany, Poland and Czechoslovakia are Category I, and would need little reinforcement. Divisions in the Soviet Union which would be moved first would be those in the western part of the USSR. With more time and risk, reinforcement divisions could also be moved from the Sino-Soviet border. The best estimate of the Soviet's ability to reinforce their East European divisions is that if mobilization were unimpeded, the 27 Soviet divisions in Eastern Europe could be increased to over 80 in a few weeks.[11]

The value of the large number of Warsaw Pact forces, excluding the Soviet Union, in a general conflict is open to question.

> "...The Pact's apparent preoccupation with preserving a conventional preponderance on the central front in Europe reflects the need to keep allies in a position of political subservience. This conception poses an essentially political role for the Warsaw Pact in terms of Soviet security and does not take very seriously the military contributions made by WTO allies to the defense or achievement of Soviet interests. On the contrary, in this view the need to garrison large forces to maintain political control means that the USSR's allies constitute a military liability to it..."[12]

TACTICAL PRINCIPLES

In a publication on Soviet military thought, written in 1970, by Colonel A.A. Sidorenko, entitled The Offensive, the author makes clear the characteristics of modern Soviet tactics:

> "--The offense will take on great spatial size because of the decisiveness of goals. It will be conducted night and day, in any weather, without letup until the enemy is defeated.
>
> --The question of massing forces and means in attack will be solved in a new way. Maneuver with nuclear weapons will assure the achievement of surprise.
>
> --Another important feature will be the highly maneuverable, dynamic character of the modern offensive. Again

this will be a result of the use of the nuclear weapon.

--Nuclear weapons also will cause the waging of the offensive on broad axes. This is because troops cannot concentrate, under nuclear conditions, for the offensive on a narrow, solid front. They must be dispersed.

--Because of waging the offensive along different axis, different degrees of defeat of the enemy and of enemy resistance, there will be unevenness of development of the offensive. Even the term 'front-line' will be rejected for the 'line of fighting contact of troops.'

--Mutual use of nuclear weapons, high troop mobility, and saturation of the battlefield with tanks will lead to rapid and acute changes of circumstances in the course of the offensive. Another feature of nuclear war will be the conduct of operations in conditions of wide zones of contamination, destructive fires and floods. There will be great expenditures of material, massive losses of troops and equipment."[13]

The Soviet Union is prepared to fight a tactical nuclear war if necessary, and is prepared to initiate the nuclear fighting. There are, however, other thoughts. The Brookings Institution states:

"The decisive role formally imputed to nuclear arms by Soviet doctrine is attenuated somewhat by recent Soviet writings and war games. They have (1) indicated a growing acceptance of the possibility that a war in Europe might have an initial conventional phase--a principle focus of NATO strategy and force planning since the adoption of flexible response in 1967--and (2) emphasized that Soviet 'forces must be prepared to fight without using nuclear weapons utilizing the standard conventional classical weapons."[14]

In a report to the Congress on the FY 77 budget and its implecations for the FY 78 authorization request and the FY 77-81 defense programs, Donald H. Rumsfeld stated:

"We also face the problem that the length of a conventional war in Europe is quite uncertain. Despite confident forcasts of a short intense conflict, it is within the realm of probability that we would have to sustain and support our forces in the Center Region over a period of many months, as well as provide reinforcements to the northern and southern flanks..."[15]

TACTICAL DOCTRINE

1. Offense. The decisive victory is achieved by the offense. Speed and shock are preferred over fire and maneuver to develop combat power. Heavy losses and the isolation of units is to be expected. Soviets believe flanks are secured by an aggressive advance that will not give the enemy a chance to mount an action against their flanks. Flame and electronic countermeasures are employed to assist in the advance. Maximum use is made of chemical, biological, and nuclear operations when the weapons are released. Large-scale offensives are conducted to capture objectives that may be 500 km deep, and they are prepared to continue an additional 500 km. The offensive takes the form of deep tank thrusts, preferably through weak enemy defenses with wide encirclements to trap and destroy large groups of enemy forces and cause the collapse of enemy resistance. When the enemy forward defenses have been breached, either through penetrations or flank attacks, the offensive is continued to defeat in detail enemy reserves.[16]

> "...a sustained advance averaging no less than approximately 70 miles per day is deemed the minimum required to fulfill the ambitious goals of offensive operations..."[17]

2. Defense. The defense is only initiated to gain time or as an economy of force. The defense is temporary in nature. It is characterized by stubborn defense of prepared positions and strong counterattacks. Planned antitank defenses are basic to the concept, and antitank fires provide the basis for the defense. The defense is organized into belts which are combinations of fixed positions

forward, and counterattack forces in the rear. Trench systems, fortifications, and obstacles are emphasized. Penetrations are met first with local counterattacks. If unsuccessful, the defending units try to delay and canalize the enemy into kill zones.[18]

3. Mass. The Soviet commander achieves mass by rapid concentration of men, material and firepower. This concentration is maintained no longer than necessary, and in nuclear conditions concentrations are avoided.[19]

4. Dispersion. If not concentrated for specific tactical missions, units are kept dispersed.[20]

5. Surprise. Surprise is sought at all times. The Soviets have experienced the horrendous consequences of surprise invasions and they are determined that they will never again allow themselves to be caught unaware and to permit a potential enemy to hold the initiative. The Soviet Union attaches great importance to achieving both strategic and tactical surprise in future combat.[21]

6. Command and Control. Unity of command is practiced at all echelons, and commanders are required to make detailed personal reconnaissance, exercise close personal supervision, issue detailed orders, and control the actions of subordinate units. Commanders are permitted latitude in execution provided they do not violate the orders of the higher commander. The Soviet system of command posts and communications is designed to insure continuity of control. Each division level and larger unit is required to have main and alternate command posts nuclear safe distances apart, with mandatory duplicate communications.

Planning is thorough and detailed, and if time is available, nothing is left to chance. During fast moving situations, however, it is more important to move rapidly than prepare and coordinate a detailed plan.[23]

MANEUV.

1. Offensive Action.

a. Meeting Engagement. The meeting engagement is the most common offensive maneuver. Speed of reaction is vital, and the commander who gains the initiative has a decisive advantage. Success is achieved by speedy and aggressive action and the coordinated use of all arms, despite lack of detailed knowledge of the enemy. It can be accomplished by a smaller force if it is aggressive and launches coordinated attacks before the enemy can react. When operating against over-extended defenses or unprepared positions, Soviets deploy from the march column and attack without halting.[24]

b. The Breakthrough. When the enemy has established either a hasty or deliberate defense line, Soviets will breakthrough. Breakthrough operations require two echelons of attack forces. Attacking units try to push through weakly defended or unoccupied areas to create gaps that permit exploitation forces to strike deep into the enemy rear. Capture of strong points and key terrain is left to succeeding echelons. Once breakthrough is accomplished subsequent actions are encircling and de[illegible]ying enemy defenses through a series of meeting engagements.[25]

c. Pursuit. The fleeing enemy gets no rest. Soviets maintain continuous contact to totally defeat the enemy and prevent his resuming controlled operations.[26]

d. Frontal Attack. Penetration of enemy forward positions by frontal attacks is one method of breakthrough, but is only used when there are no open flanks to attack.[27]

e. Envelopment. This maneuver is aimed at an open flank, it can be either close or deep.[28]

(1) Close Envelopment. Close envelopment is employed against one or both enemy flanks, and is supported by fire from the units supporting the main attack.[29]

(2) Deep Envelopment. This decisive maneuver contributes most effectively to the encirclement and destruction of the enemy. It is used when enjoying a preponderance of force and there is little risk of defeat in detail.[30]

f. Multiple Penetration. If double envelopment is not possible, multiple penetration through the enemy front is employed. It is a series of penetrations to the depth of the enemy corps reserves, with subsequent encirclement and destruction of separated enemy forces.[31]

g. Pincers. This is used when an enemy flank appears unassailable. It consists of two penetrations made to create assailable interior flanks. Mobile forces attack through the gaps created by the initial penetrations, make a deep penetration toward corps reserves, and meet at the enemy rear to engage possible enemy reinforcements. Forces forming the inner pincers divide and destroy

encircled enemy forces.[32]

2. Defensive Action. The defense is organized in successive zones designed to provide depth to the defended area. These are (1) security zone, (2) main defense belt, (3) second defense belt, (4) third defense belt.[33]

a. Security Zone. The purpose of this zone is to halt or delay the enemy by forcing him to deploy before reaching the main defense belt.[34]

b. Main Defense Belt. This belt is designed to stop and destroy attacking enemy forces. Within this belt are forces that include tanks, artillery, antitank weapons, air defense, division reserves, and the division main and alternate command posts.[35]

c. Second Defense Belt. This belt is located 8-10 km to the rear of the main defense belt. It consists of prepared but unoccupied defense positions, and if the main defense belt is penetrated, this belt is intended to contain the enemy until counterattacks from the third defense belt are launched. The belt is defended by Army second echelon units and reserves, including security forces who have completed their security missions.[36]

d. Third Defense Belt. This belt is located 8-10 km to the rear of the second. Located in or near this belt is the Army's reserve, the Front's second echelon forces and front reserves.[37]

3. Retrograde Operations. Retrograde operations consist of the delay, the withdrawal, and the retirement.[38]

a. Delay. The delay offers sufficient resistance to prevent infiltration and to force the enemy to concentrate for a

deliberate attack. It includes ambushes and traps, fires, pre-positioned nuclear weapons, flame and chemical mines, and obstacles. Long range fires may be withheld as a deception. First echelon forces engage the enemy at long ranges, and as the enemy advances, he is repeatedly attacked on the flanks by small, mobile units. Effort is made to disorganize and force the enemy to reorganize or deploy. When threatened with decisive combat, the delaying force will disengage and withdraw.[39]

b. Withdrawal.

(1) The withdrawal is executed when necessary to disengage from the enemy. It is planned in as much detail as possible, and as it commences, it is covered by darkness, smoke, artillery, limited armor counterattacks, and nuclear fires.[40]

TACTICAL RECONNAISSANCE

Soviet reconnaissance units are organic to both the division and the regiment. The division has a reconnaissance battalion consisting of a Headquarters and Service section, Light Tank company, Scout Car company, Radio Reconnaissance company, and a Long Range Reconnaissance company, (See Fig. 3-1). Each tank and motorized rifle regiment has a Reconnaissance company consisting of a Headquarters section, Tank platoon, Amphibious Reconnaissance Vehicle platoon, Motorcycle platoon, and Chemical Reconnaissance platoon, (See Fig. 3-2). The regimental reconnaissance company performs the same missions for the regiment that the battalion does for the division.[41]

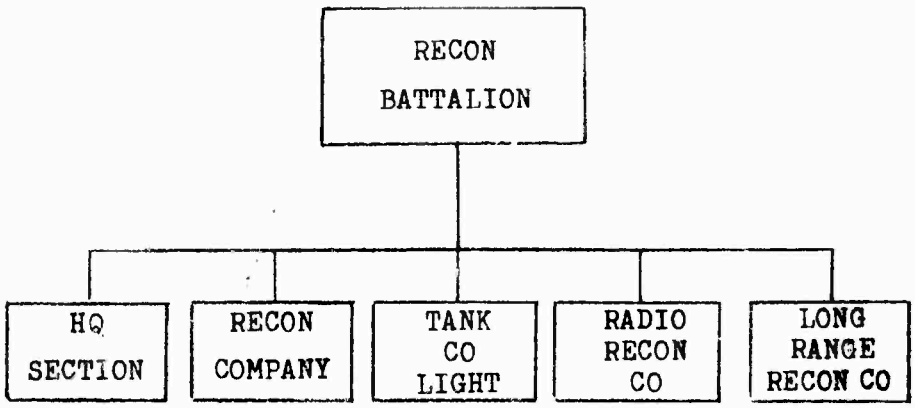


Fig. 3-1

Divisional Reconnaissance Battalion

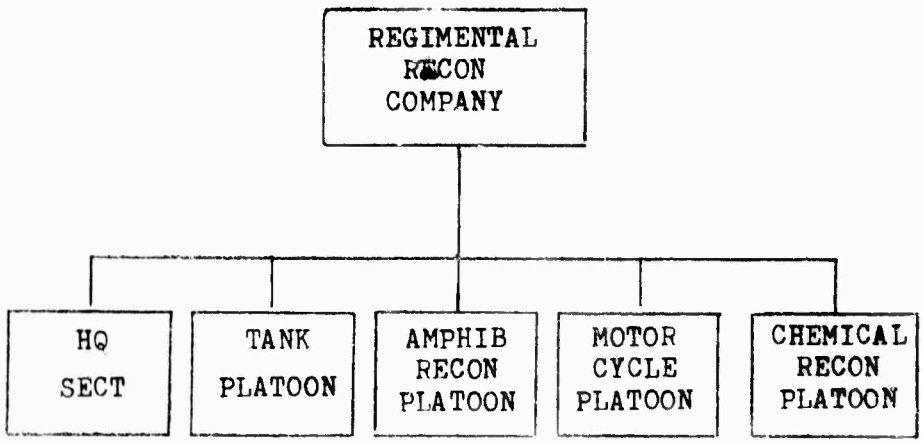


Fig. 3-2

Regimental Reconnaissance Company

Reconnaissance units are equipped with PT-76 light tanks, BRDM scout and reconnaissance vehicles, motorcycles, SA-7 anti-air missiles, and are supported by artillery, mortars and close air support. Soviet reconnaissance units are active in both the offense and the defense.[42]

In the offense Soviet reconnaissance units operate 8-10 km forward of the division's advance guard in the movement to contact.[43]

The basic purpose of the advance reconnaissance in the movement to contact is to find the defender's flanks and weak areas so the main body may quickly bypass pockets of resistance and continue the mission.[44]

Once the reconnaissance battalion has located the enemy or is stopped the following advance guard attacks to destroy the force.[45]

The battalion moves forward of the division advance guard orienting on the main body's primary avenue of approach. It operates across the entire front; however, its primary mission is clearing routes for the first and second echelon regiments.[46]

The battalion will be reinforced with artillery FO's and chemical and radiological reconnaissance units.[47]

The battalion organizes for the offensive security mission by forming reconnaissance groups and patrols. These task forces are temporary subunits organized for specific missions. A group consists of a light tank platoon, reconnaissance platoon, chemical and radiological reconnaissance squad and one engineer squad. Within the group an advance guard reconnaissance patrol of one PT-76 one BRDM and one motorcycle may operate 4-7 km forward of the group.[48]

The battalion allocates a reconnaissance group to each divisional route of advance. The group will form patrols as sub-groups. The group is assigned successive objectives along the route. As the group secures an objective it secures a reconnaissance base and then moves forward to the next objective. Patrols reconnoiter by rapid and frequent movement from one vantage point to another and observation points are established. Movement across broken terrain is by bounds and movement across open terrain is done at high speeds.[49]

The battalion employs its radio/radio technical reconnaissance company directly behind the combat elements of the first echelon regiments. The company will conduct radio intercept and direction finding to assist the battalion in its reconnaissance. The long range reconnaissance company can insert patrols as far as 100 km behind enemy lines to locate reserves and nuclear delivery sites.[50]

When the group makes enemy contact it will feint and execute flanking maneuvers to determine enemy strength and dispositions. It then reports this information and attempts to bypass the enemy to continue the advance. If the contact is light the group may remain in contact to create a diversion while the main body elements bypass. If the contact is heavy the position is saturated by artillery and attacked by the main body advance guard.[51]

Defense missions for the reconnaissance battalion are: (1) to provide early warning, (2) establish and maintain contact with enemy forces, (3) gather information, (4) conduct counter-reconnaissance, (5) delay by long range direct and indirect fires, (6) harass and decieve, (7) avoid decisive combat. In order to accomplish these

missions they will employ both mounted and dismounted squad and platoon size patrols throughout the zone.[52]

In the defense the Soviets establish a security zone. The zone will usually be established 20-25 km forward of the main defense belt. The zone will consist of light reconnaissance units employing light tanks, ATGM's infantry and minefields, all supported by long range artillery and anti-air fires. This zone is designed to harass and slow the enemy attack.[53]

The reconnaissance battalion may be reinforced with tanks and motorized rifle platoons from the main defense zone units. These attached platoons will form strong points within the security zone to assist reconnaissance units and to canalize advancing enemy reconnaissance units into kill zones.[54]

Observation posts in the security zone can be equipped with infrared searchlights, and telescopes providing a night vision range of about 1300 meters.[55]

Radio intercept and direction finding is also used as a reconnaissance tool by the battalion in determining units, locations etc.

DESERT OPERATIONS

In order to simplify the various types of operations that might be required to be performed, the Soviets make as few organizational changes as possible. Motorized rifle and tank divisions are considered to be very well organized for desert operations. The tank division being 100 per-cent mobile, is ideal for desert warfare. Although the lack of mobile artillery in the motorized rifle

division is a problem, that division is also well suited for desert operations. The large number of antiaircraft weapons in the Soviet army and their allocation down to the company level provide them a great deal of protection against tactical air, despite the openness of the desert.[56]

Tactics are only slightly modified for desert operations. Night operations, normal for the Soviets, will be stressed even more. Attack depths and frontages will be increased, and a division may attack over a frontage of 50 km. Airborne or airmobile units may be employed to secure flanks of long columns. There will be wide gaps between advancing units, and battalions will be allowed to operate more independently. Battalions may advance in company columns and carry out attacks from the line of march, at high speed. The Soviets consider frontal attacks in the desert to be worthless. Attacks may be in a single echelon rather than the normal two. Infantry may dismount in the attack and follow the tanks on foot.[57]

Tactical airborne and air assault operations will be emphasized, and airborne/air assault operations will take place when there can be link-up with conventional ground forces.

In the desert, as well as any other battle area, the Soviets consider the defense as temporary. They do, however, vary their defensive tactics in the open desert. The defense is organized around all of their fires concentrated on tank avenues of approach, and fires are planned for killing enemy tanks. Defenses are also characterized by strong mobile reserves and greater depth to avoid encirclement. The counterattack is planned to be a surprise attack

and will come from an unexpected direction against an enemy flank.[58]

SOVIET AIR DEFENSE

An important Soviet improvement program that will have an impact on the employment of U.S. Army aviation has been toward greater mobility and upgrading of air defense weapons. This program permits ground forces to operate on the modern battlefield under an integrated surface-to-air missile and gun systems umbrella. Surface-to-air missiles together with anti-aircraft guns form a mutually supportive and highly mobile air defense system. Increases in the number of deployed anti-aircraft weapons, of all types, will reduce the vulnerability of ground forces over much larger areas of the battlefield.[59]

Soviet anti-aircraft capability will continue to improve as they implement recently developed organizational changes. These changes will increase the concentrated fire power and mobility of existing air defense organizations.[60]

Soviet forces are phasing out the heavier 85-mm and 100-mm guns in favor of surface-to-surface missiles and lighter guns. These heavier weapons will continue to be found in Warsaw Pact air defense units.[61]

Some of the Soviet air defense weapons that U.S. Army ground/air forces should consider are:[62]

1. SA-4 GANEF, tracked vehicle mounted, two per vehicle, medium to high altitude system, radar controlled, kill zone 500 to 50,000 foot altitude out to about 50 km.

2. SA-6 GAINFUL, tracked vehicle mounted, three per vehicle, low to medium altitude system, radar or optically guided, kill zone 250 to 60,000 foot altitude out to about 30 km.

3. SA-2 GUIDELINE, carried on truck towed trailer launcher, one per launcher, radar guided, medium o high altitude system, kill zone 500 to 100,000 foot altitude out to about 55 km.

4. SA-3 GOA, truck mounted, two per vehicle, low altitude system, radar guided, slant range 6 to 22 km.

5. SA-7 GRAIL, heat seeking, shoulder held, man portable, range 3.5 km, low altitude defense weapon, for use at the company and battalion level.

6. S-60, 57-mm anti-aircraft gun, towed on a four wheel carriage, radar or optical fire control, range 6000 meters, rate of fire 120 rounds per minute, the standard weapon for divisional anti-aircraft regiments.

7. ZSU-57-2, 57-mm anti-aircraft gun, twin guns mounted on a tracked armored vehicle, range 4000 meters, rate of fire 240 rounds per minute, optical fire control, organic to tank divisions.

8. ZSU-23, 23-mm, twin guns mounted on a carriage with detachable wheels, range 2500 meters, rate of fire 2000 rounds per minute, optical fire control, found in tank and motorized rifle units.

9. ZSU-23-4, 23-mm, four guns mounted on an armored tracked vehicle, radar or optical fire control, range 3000 meters, rate of fire 4000 rounds per minute, found in the motorized rifle and tank

divisions.

10. SPU-4. 14.5-mm, four heavy barrel machine guns mounted on a towed carriage, optical fire control, range 1400 meters, rate of fire 2400 rounds per minute, used primarily in motorized rifle regiments.

11. Small arms and crew served weapons found in every front line unit and on combat vehicles.

Such a great emphasis is placed on Soviet and Warsaw Pact air defense that any 50 km section of front could contain:[63]

1. 3 batteries of SA-2.
2. 9 batteries of SA-4.
3. 5 batteries of SA-6.
4. 24 batteries of S-60.
5. 6 troops of ZSU-57-2.
6. 32 troops of ZSU-23-4.
7. 19 batteries of ZU-23-2.
8. SA-7, small arms and crew served weapons at every level.

SOVIET ANTI-ARMOR

Soviets consider antitank weapons to be of paramount concern. Soviet tactical doctrine affirms the principle that speed in the attack creates success. The speed of the attack is dependent upon the unobstructed movement of their armor and their ability to suppress enemy anti-armor. Soviets employ a number of weapons systems in the anti-armor role. They have special anti-armor units and/or anti-armor weapons in all maneuver units. Infantrymen

carry large numbers of antitank grenades, and shoulder fired RPG-7 rocket launchers are issued down to the squad level. Man portable antitank guided missiles, ATGM's are carried in infantry combat vehicles, BMP, and these vehicles can have ATGM launcher mounts. Antitank units are equipped with various types of weapons from the 76-mm recoilless gun to the 100-mm antitank gun. Tanks are employed against tanks and field artillery kills armor with both direct and indirect fires.[64]

The RPG-7 has a range of 300 meters, the 76-mm recoilless gun has a range of 1000 meters, the 100-mm gun has a range of 1000 meters and the At-3 Sagger missile has a range of 3000 meters.[65]

Philip A. Karber, Director of Strategic Studies at BDM Corporation, in an article written about "The Soviet Anti-Tank Debate" for the International Institute For Strategic Studies made some interesting observations. He observed that during the 1973 Middle East War the Soviets were highly impressed with the success of their antitank guided missiles Sagger and Swatter against all types of armored vehicles. He states that it would be naive for western analysts to think the Soviets have not recognized the success of the ATGM, or its potential to change the balance of conventional combat power. The debate came when they realized: (1) The infantryman has the ability to kill tanks at ranges beyond which the tank could fire back, and (2) their infantry combat vehicle was even more vulnerable than the tank.[66]

The debate is not over ATGM's themselves, but how to combat them. Several opinions emerged during these debates. The

predominant views were: (1) Suppress ATGM's with artillery. (2) Use of artillery would slow the advance and that more speed is needed. (3) Use of tactical nuclear weapons would suppress antitank defenses. (4) Surprise raids by infantry combat vehicles and tanks at high speeds would negate the value of ATGM's. There is reason to believe that the Soviet Army would rather initiate a surprise attack without using nuclear weapons. They would attack with forces currently available without mobilization. The surprise attack would attempt to intercept NATO forces before they could mobilize or while they were in the process of mobilization.[67]

CONCLUSIONS

There are a number of scenarios that could produce a war in Europe, the Middle East, or both areas concurrently. I will cite two possibilities. In either situation the mechanized infantry or the armored division would most certainly participate.

The Soviet Union might be tempted to establish tighter control over Warsaw Pact nations and initiate a war with NATO if:

(1) The economic strength of the NATO nations continues to increase at a rate greater than that of Eastern Europe,

(2) Warsaw Pact nations increased their political and economic ties with Western Europe,

(3) Soviet influence lessened to the degree that they forsaw the loss of the buffer zone between them and the West,

(4) Increase in NATO capability,

(5) The war might be intended to be of short duration with limited political and military objectives, or it could have unlimited

military objectives,

(6) Combinations of the above.

In the Middle East scenario, either an oil embargo or a new Arab-Israeli conflict could produce the following results:

(1) One side becomes involved and, as a result, the other becomes involved.

(2) Both sides become involved, and the Soviet Union, knowing the strategic force limitations of the United States, opens a second front in Europe.

(3) The United States becomes involved in a war in the Middle East and, without involving itself in the Middle East, the Soviets attack in Europe.

Present Soviet tactical principles remain essentially unchanged from those of the Great Patriotic War. The tactic could almost be called controlled chaos. The tactic may be compared to the fighter who comes out at the opening bell flailing away with both arms at his opponent hoping to get in a knockout punch before his opponent can recover.

The Soviets are totally preoccupied and inflexible about driving without halt to an objective as much as 70 kilometers deep in the enemy rear. They mean to accomplish this objective by conducting a breakthrough with multiple armies and divisions through a surprise attack. They expect initial isolation of units and heavy losses, but consider this as unavoidable. There are some potentially fatal flaws in these tactics that can be exploited, provided the defender is not also too inflexible.

Soviet and Warsaw Pact forces have the capability to initiate a semi-surprise attack across a narrow front with sufficient forces to effect a breakthrough. I conclude this to be a tactical possibility even if Warsaw Pact forces are not used, or are only used in a minor role. The success of the attack wi depend on the ability of NATO forces to react to multiple contingencies. This simply means that NATO forces might have to fight from positions other than those presently in plans, that the attack would be nuclear or non nuclear, and that the war may be long and intense rather than short and intense.

The Soviet Army has significant problems. Some problems have been recognized, and steps are being taken to correct them. What I perceive to be problem areas may not be considered problems by the Soviets.

What follows is a list of what I consider to be weaknesses in Soviet tactical principles, equipment, and service support. These are weaknesses that can be exploited by Soviet opponents.

Speed and shock are valuable tools in combat, but not when other basic principles are ignored. Bypassing centers of resistance and early execution of the exploitation and pursuit make rear areas, flanks, lines of communication for resupply, and service support highly vulnerable. The Soviet Army's implementation of the pursuit at the first sign of an enemy withdrawal could cause the isolation of their units if they misinterpreted the signs and implemented the pursuit prematurely.

Massing for an attack is a recognized tactical principle, but the planned massing of large numbers of forces make those forces vulnerable. The Soviets will have too many forces moving over a few limited avenues of approach. The masses of forces will make them vulnerable to nuclear and conventional fires.

The centralization of control and inflexibility of plans and formations can create situations where lower level commanders will not know how to react. For instance, if the enemy defense holds, Soviet first echelon units will have a problem when they try to organize concurrently a hasty defense and a deliberate attack.

The emphasis on an early return to the offense, while in the defense, might cause some battlefield commanders to try to regain the initiative before they are ready.

Soviet battlefield commanders and front line soldiers will have a very limited knowledge of the terrain over which they will be attacking. Magnifying this problem is the critical shortage of tactical maps available to Soviet front line troops, and the fact that the defender will be on terrain of his choosing.

A large quantity of Soviet artillery in the motorized rifle division is towed. This is a significant problem since: (1) The breakthrough force is primarily motorized infantry; and (2) Towed artillery will hinder the mobility and speed of the attacking units and is vulnerable to suppressive fire.

The Soviet tank carries less ammunition than the U.S. tank. The Soviet tank carries only 40 rounds, of which only 20 are anti-tank. By comparison, the U.S. M-60A1 tank carries 63 rounds. Note:

The new T-72 Soviet tank, about which there is very little unclassified information, has been deployed to Europe sooner than expected. It is possible that it has an automatic loader and carries more than 40 rounds.

Soviet combat service support is limited in its ability to support a deep attack. It will be road bound and will have a difficult time trying to support an attack intended to progress 70 kilometers the first day. The Soviets intent to use captured materials to support the offensive is a risk that front line commanders will have to face.

CHAPTER 3

FOOTNOTES

[1]B.H. Liddel Hart. The Red Army. (New York: Harcourt, Brace, 1965), pp. 30-31.

[2]Hart. p. 14.

[3]Hart. pp. 15-16.

[4]Hart. p. 57.

[5]U.S. Army Command and General Staff College. Selected Readings in Tactics, Contingency Force Operations, (Middle East Setting. RB 100-2, Vol III. (Ft Leavenworth: U.S. Army Command and General Staff College, August 1976), pp. 14-10 - 14-11.

[6]The International Institute For Strategic Studies. The Military Balance 1976-1977. (London: The International Institute For Strategic Studies, 1976), p. 9.

[7]Jeffery Record. Sizing Up the Soviet Army. (Washington D.C.: The Brookings Institution, 1975), p. 41.

[8]The International Institute For Strategic Studies. p. 9.

[9]The International Institute For Strategic Studies. p. 97.

[10]The International Institute For Strategic Studies. p. 101.

[11]The International Institute For Strategic Studies. p. 100.

[12]Lawrence T. Caldwell. "The Warsaw Pact." Problems of Communism. (Washington D.C.: Sep-Oct 1975), pp. 16-17.

[13]Col. A.A. Sidorenko. The Offensive. (Moscow: 1970 (U.S. Air Force translation, U.S. Government Printing Office), p. vii.

[14]Record. p. 38.

[15]Donald H. Rumsfeld. Annual Defense Department Report FY 1977. (Washington D.C.: Defense Department, 27 Jan 76)

[16]U.S. Army Intelligence Threat Analysis Detachment. Military Operations of the Soviet Union, USAITAD Report No. 14-U-76. (Arlington Va.: 25 May 1976), pp. 9-10.

[17]Record. p. 43.

[18]USAITAD Report No. 14-U-76. p. 10.

[19]USAITAD Report No. 14-U-76. p. 11.

[20]Ibid

[21]Ibid

[22]Record. p. 42.

[23]USAITAD Report No. 14-U-76. p. 12.

[24]USAITAD Report No. 14-U-76. p. 13.

[25]USAITAD Report No. 14-U-76. p. 13-14.

[26]USAITAD Report No. 14-U-76. p. 14.

[27]Headquarters Department of the Army. Handbook on Soviet Ground Forces, FM 30-40. (30 June 1975), pp. 5-11.

[28]Ibid

[29]Ibid

[30]Ibid

[31]USAITAD Report No. 14-U-76. p. 16.

[32]Ibid

[33]USAITAD Report No. 14-U-76. p. 19.

[34]USAITAD Report No. 14-U-76. pp. 19-20.

[35]USAITAD Report No. 14-U-76. p. 22.

[36]Ibid

[37]Ibid

[38]USAITAD Report No. 14-U-76. p. 25.

[39]USAITAD Report No. 14-U-76. pp. 25-26.

[40]USAITAD Report No. 14-U-76. p. 26.

[41]U.S. Army Armor School. How To Fight Manual Cavalry, FM 17-95, (Final Draft). (Ft. Knox: April 1976), pp. 6-3 - 6-8.

[42]FM 17-95. p. 5-14.

[43]FM 17-95. p. 6-5.

[44]FM 17-95. p. 6-6.

[45]Ibid

[46]FM 17-95. p. 6-5.

[47]Ibid

[48]FM 17-95. pp. 6-5 - 6-6.

[49]Ibid

[50]Ibid

[51]FM 17-95. p. 6-6.

[52]FM 17-95. p. 5-14

[53]FM 17-95. pp. 5-13 - 5-15.

[54]FM 17-95. p. 5-14.

[55]FM 17-95. p. 2-26.

[56]RB 100-2, Vol III. pp. 14-1 - 14-2.

[57]RB 100-2, Vol III. pp. 14-3 14-4.

[58]USAITAD Report No. 14-U-76. p. 224.

[59]Gen. George S. Brown, USAF. United States Military Posture For FY 1977. (Washington D.C.: 20 January 1976), p. 51.

[60]Ibid

[61]FM 30-40. p. 6-65.

[62]U.S. Army Command and General Staff College. Selected U.S. and Soviet Weapons and Equipment, RB 30-2. (Ft. Leavenworth: U.S. Army Command and General Staff College, July 1976), pp. 6-53 - 6-62.

[63]U.S. Army Armor School. Gunnery Training For Attack Helicopters, TC 17-17. (Ft. Knox: 31 December 1975), p. 1-6.

[64]FM 30-40. pp. 6-53 -6-62.

[65]Ibid

[66]Philip A. Karber. "The Soviet Anit-Tank Debate." Survival. (XVIII. No. 3. 1976), pp. 105-111.

[67]Ibid

CHAPTER 4

UNITED STATES FORCES

INTRODUCTION

This chapter will discuss the missions and employment of the armored and mechanized infantry division and its armored cavalry squadron. The chapter will also discuss current tactics and organizational theory. I will propose cavalry squadron organizations that represent the current or theoretical needs of our army and attempt to justify these selections. In doing this it will be necessary to determine what the squadron is expected to perform in support of its division, and what it is prepared to perform.

THE DIVISION

The armored and mechanized infantry divisions are normally employed as part of a corps force. When suitably reinforced by the corps, they are capable of extended operations.

These divisions are similar in organization, the main difference between the two divisions are the mix of combat maneuver battalions assigned to each. The type divisions are organized with a base (See Fig. 4-1), with the maneuver battalions attached (See Fig. 4-2). The primary combat maneuver elements are tank and mechanized infantry battalions that the division commander attaches or detaches from the brigades for specific missions. The divisional armored cavalry squadron is part of the division base. It is employed in

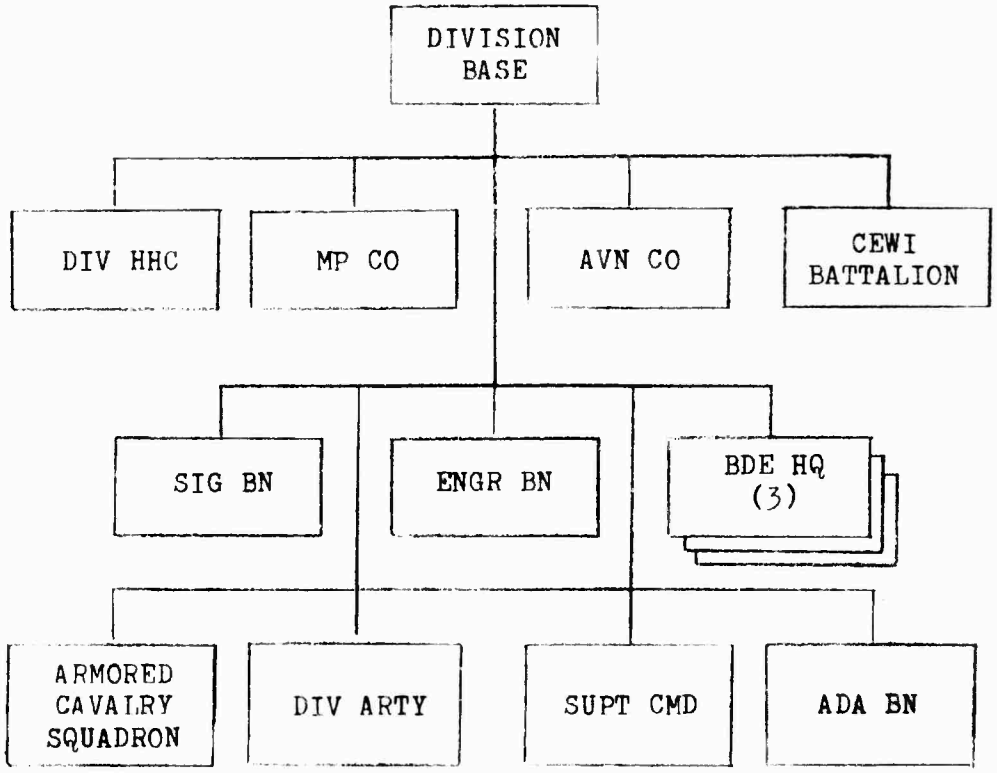


Fig. 4-1

Division Base

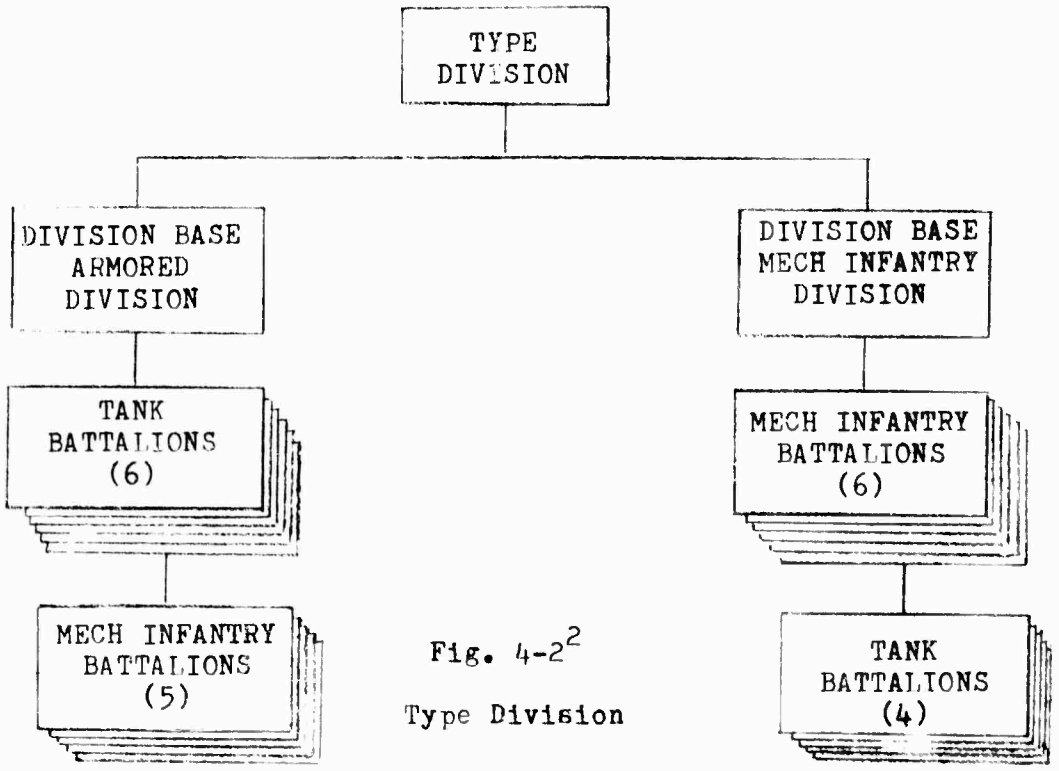


Fig. 4-2[2]

Type Division

support of divisional operations, but is not universally accepted as a maneuver battalion. The missions for the two type divisions are also similar. The chief difference is the terrain over which they are employed.

United States Army missions and tactics are very much like those of the Soviet Army. The difference is in principle. With fewer divisions it is necessary for our army to survive and concurrently, to reduce enemy offensive capability. The Soviets plan to win by surprise, shock, and mass. They discount attrition rates and will accept heavy initial losses. NATO forces, facing one-hundred Warsaw Treaty divisions, consist of seventy divisions or divisional equivalents. Thus we can expect that our divisions will be more cautious.

In mounted warfare the tank is the primary weapon; all other elements within the division assist the tanks.[3] Tank battalions are organized with a Headquarters company, Combat Support company, and three tank companies (See Fig. 4-3).

The mechanized infantry battalion is organized with a Headquarters company, Combat Support company, and three mechanized infantry companies (See Fig. 4-4).

The division's artillery, as part of the division base, is organized to provide direct support to each maneuver brigade, to reinforce the fires of direct support artillery battalions, and to provide general support fires. Normally an artillery battalion is placed in direct support of each committed brigade. The remaining battalion(s) furnish the reinforcing, general support reinforcing,

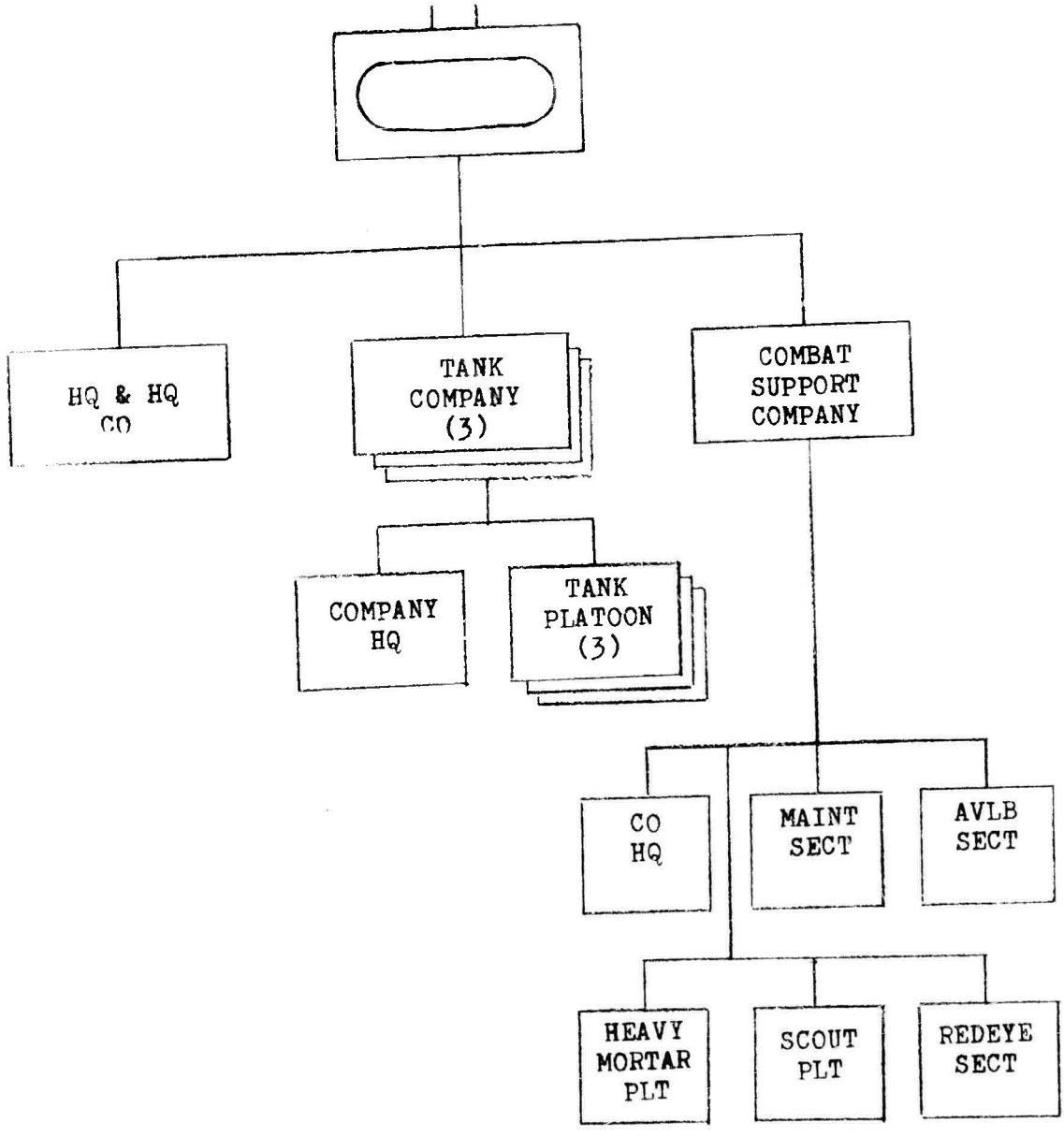


Fig. 4-3[4]

Tank Battalion

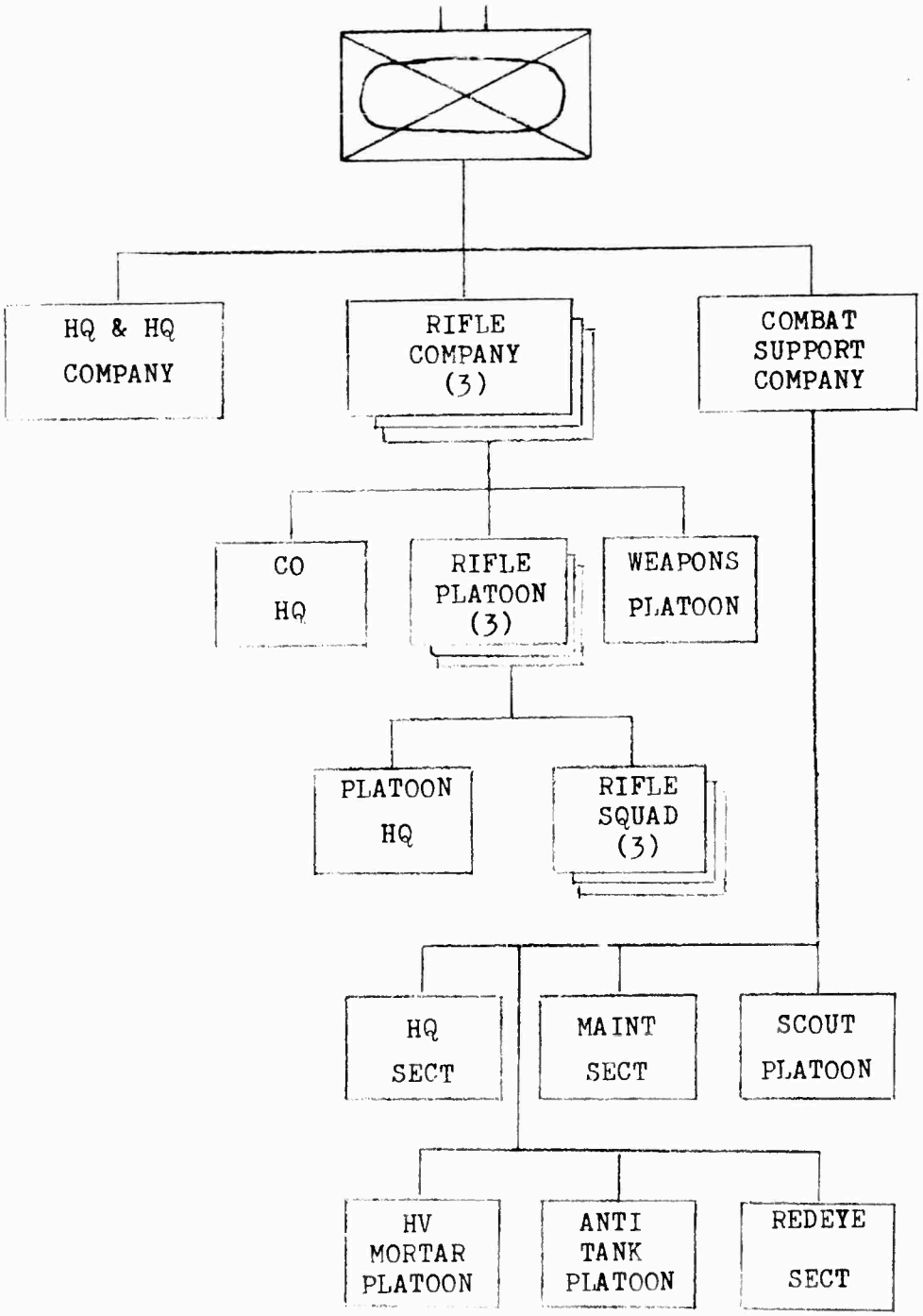


Fig. 4-4[5]

Infantry Battalion (Mechanized)

or general support fires. The division's artillery is organized with a division artillery headquarters, three 155-mm (self propelled) battalions, and one 8-inch (self propelled) battalion (See Fig. 4-5). The division's artillery can be reinforced by corps artillery group(s), with three to five battal ons each. Artillery is not kept in reserve, and all battalions will have missions.

The divisional armored cavalry squadron is presently organized with a headquarters troop, three armored cavalry troops, and one air cavalry troop (See Fig. 4-6). The cavalry squadron has been primarily a reconnaissance and security oriented unit.

The backbone of a tactical operation is the battalion task force. The task force is organized by cross attaching mechanized infantry companies and tank companies into balanced, mechanized infantry heavy, or tank heavy battalion task forces. Task organizing allows brigade and division commanders the freedom to tailor units for specific missions. This differs from Soviet doctrine that reinforces pure units.

Corps commanders having seperate brigades or regiments can attach them, or some of their battalions, to divisions. The corps commander may also move battalions from one division to another division, brigade, or regiment.

From corps to battalion, commanders can organize their units as necessary.

DIVISION OPERATIONS

Combat missions for a division are offensive, defensive and

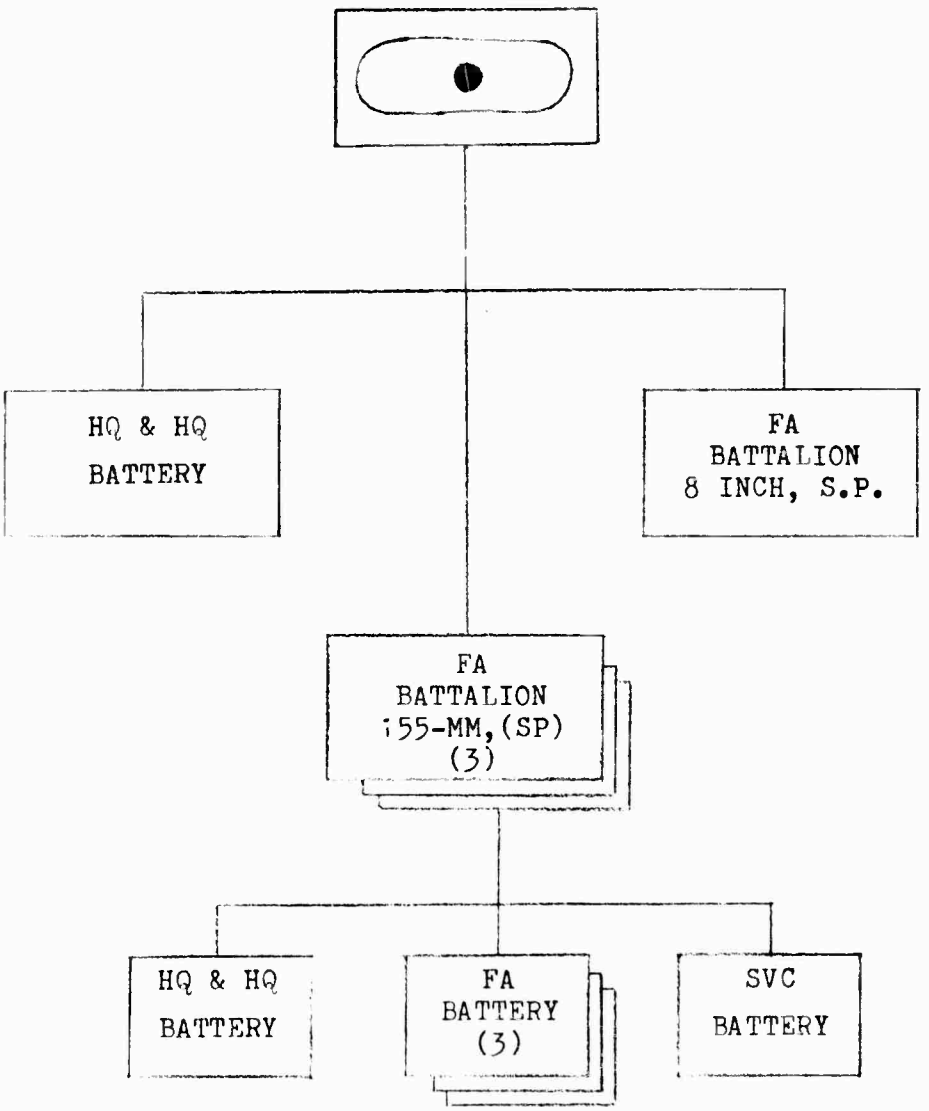


Fig. 4-5[6]

Division Artillery

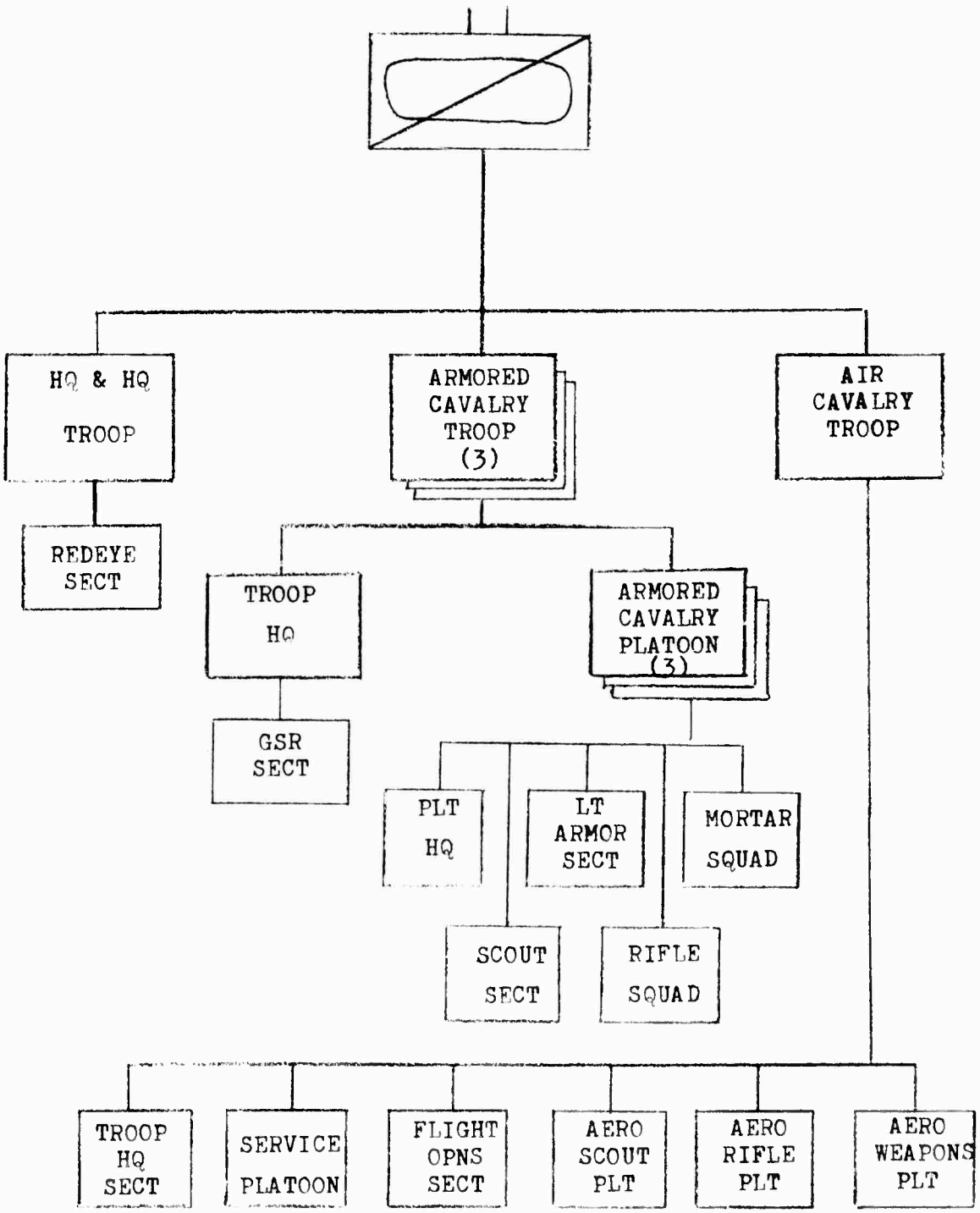


Fig. 4-6[7]

Divisional Armored Cavalry Squadron

retrograde. Offensive oprations are movement to contact, hasty attack, deliberate attack, exploitation, and pursuit. There are other types of offensive missions, such as raids, feints, etc., but these normally follow the fundamentals of other offensive operations. Retrograde operations are delay, withdrawal, and retirement.[8]

The outcome of a battle is a result of the success or failure of offensive operations or the maintenance of the initiative by one side or the other. The attacker concentrates his combat power at selected points, while the defender's forces are spread to cover all possible approaches to his positions. Thus by surprise, concentration of forces and suppressive fires, an aggressive attack can succeed.[9]

The commander takes offensive action when he believes he can inflict heavy personnel and materiel losses on the enemy, neutralize major enemy forces, or accomplish some lesser goal for a specific purpose.[10]

Attacks are usually deliberate from the outset, but may involve a movement to contact by most of the combat elements in the attacking force. The movement to contact is an operation conducted to find and engage the enemy. The enemy is met with the least force possible, in order to avoid excessive casualties in the first chaotic moments of the battle. The division may consider such an operation to be an attack, but at the company level it starts with a meeting engagement. The chief characteristic of the movement to contact is that the attacking unit is unsure of the location, strengths or weaknesses of the enemy. If he knows, he will conduct a

deliberate attack.[11]

During operations against an enemy covering force, or during a meeting engagement coordination between tanks, mechanized infantry, artillery and other support is critical.[12]

After the force conducting the movement to contact finds the enemy force, the commander deploys his forces to develop the situation and conducts a hasty attack. Attempts are made to force through enemy defenses with the least force, but if it is apparent that the hasty attacks will fail, the commander will conduct a deliberate attack.[13]

A deliberate attack against an organized defense is a costly and difficult operation. Nevertheless, one can minimize vulnerability and maximize the effective employment of one's own weapons by concentrating at a decisive point, and relative superiority can be achieved. At the critical point one force usually wins if it is able to bring overwhelming force and violent action to bear in such a way that the enemy's defensive system is broken.[14]

The deliberate attack aims at breakthrough on a narrow front, seeking penetration deep into the enemy rear. All fires, intelligence resources, and massive forces are applied against the enemy. Extensive preparations are necessary.[15]

After the penetration has been accomplished, immediate attempts will be made to conduct an exploitation and pursuit. The exploitation force is normally fresh and previously uncommitted. This force orients on deep objectives, bypassing small pockets of resistance, striving to destroy command and control headquarters, reserves,

and support activities and to cut off enemy escape routes.[16]

Exploitation becomes pursuit when the enemy tries to withdraw. The pursuit force orients on the retreating enemy to cut off his escape and destroy him. The pursuit will be relentless. The enemy will not be given a chance to reestablish an organized defense or delay.[17]

It frequently may be necessary or advisable to defend. The defender has many advantages over the attacker, e.g. prepared positions or terrain of his choosing, but does not have the initiative.[18] Like the Soviets, we believe that a defense is conducted only until we can regain the initiative. The basic concept of the defense is to optimize the employment of weapons to exploit every possible advantage of the terrain, to minimize vulnerability, to establish a system of mutually supporting positions, to anticipate the attacker's plans and actions, and to maneuver to block his movement.[19]

A defense is organized into three areas: covering force area, main battle area, and rear area.[20]

The covering force area extends from the reconnaissance forces of the enemy attack elements, or a position designated by the headquarters establishing the covering force, rearward to the positions established for the main defense. The force employed in the covering force area must be large enough to deceive the enemy into believing it is the main defense force. The covering force fights hard enough to cause the enemy to mass and deploy into attack formations and echelon his artillery. It attempts to strip away enemy reconnaissance units and destroy the enemy air defense umbrella.

The covering force trades space for time by delaying the enemy force. It kills as many enemy forces as possible. It attempts to determine the locations of the main and supporting attacks. The force does not allow itself to become decisively engaged, and as it moves rearward to the main battle area it hands-off the battle to main battle area forces. It can then be used to thicken the defense of the main battle area or become reserve.[21]

The main battle area is that area from the FEBA rearward to the brigade rear boundaries. It is the area in which the critical battle will be fought, and all resources must be utilized to halt the enemy. Defense within the main battle area will be restrictive or non restrictive. It is restrictive if the commander has determined that certain terrain within the main battle area must be held. It is non restrictive when the force commander is permitted to conduct the defense within the main battle area by using any tactic or maneuver that he deems appropriate.

In deploying forces for the defense of the main battle area, the commander initially deploys combat forces to cover all possible avenues of approach across the entire defensive front. Once the avenues of approach for the main and supporting attacks have been determined, he may reallocate forces in the main battle area by utilizing reserves, forces returning from the covering force, forces from sectors not in contact or forces under light contact.

The rear area extends from the brigade rear boundaries to the division rear boundary. It is not desirable for combat operations to be conducted in this area; however, the enemy has the ability to

conduct airmobile and long range patrol operations into our rear area. Combat support and combat service support units will be prepared to conduct security operations within the rear area. Reserves or combat units that are temporarily located in the rear area may assist in rear area security operat_ ns for limited periods.[22]

Retrograde operations are conducted when it is necessary to move rearward or away from the enemy. They may take place: (1) When there are not enough forces to defend or attack. (2) Where we must trade space for time to prepare for resumption of the offensive. (3) Where there will be a redeployment of forces for a different mission or to better terrain. (4) Because the present operation offers no chance for success. (5) Because the present mission has been completed. The types of retrograde operations are: delay, withdrawal, and retirement.[23]

Delay is conducted to trade space for time. The delay force fights from defensible terrain with sufficient determination to cause the enemy to slow and conduct deliberate attacks. It inflicts maximum casualties on the enemy without becomming decisively engaged, then moves rearward to the next defensible terrain. A delay action affords main forces time to regroup and reorganize.[24]

Withdrawal is disengagement from the enemy. Disengagement is more easily conducted when not being pressured by the enemy; however, it may have to be done while under pressure. When it is done under enemy pressure, friendly units will delay through successive positions until the withdrawal can be made without pressure.[25]

The retirement is conducted without enemy pressure and is

normally a tactical movement.[26]

DIVISIONAL ARMORED CAVALRY SQUADRON

At the beginning of this study I stated that there are differences of opinion as to the employment of the cavalry squadron. This section is designed to highlight those differences. I will try to explain some of the underlying meanings of these differences.

The armored cavalry squadron is presently required to play a part in all of the division's offensive, defensive, and retrograde operations. FM 17-95 (Draft), How to Fight Manual Cavalry, lists the cavalry missions as: (1) Reconnaissance: route, zone, and area. (2) Security: screen, guard, cover, offense, defense, delay, and area security. (This list does not include tactical marches, passage of lines etc, that are common requirements for all combat arms units.)[27]

The Army Training and Evaluation Program, (ARTEP), For Armored Cavalry Squadron and Troop, lists the tasks that must be performed by an active duty unit as: (1) Covering force for a force deployed for defense. (2) Zone reconnaissance and hasty attack. (3) Deliberate attack. (4) Movement to contact and hasty attack. (5) Screening operation (night). (6) Delay (high risk). In addition, individual armored cavalry troops must be prepared to conduct an advance guard mission and an active defense (night). In addition to supporting other squadron operations the air cavalry troop must conduct an advance guard and a rapid reaction force mission.[28]

In classroom exercises conducted at the U.S. Army Command and General Staff College, the primary employment of the divisional

cavalry squadron is: (1) Offensive action as an economy of force. (2) In a covering force (three times attached to a brigade, once to an armored cavalry regiment). (3) In the defense attached to a brigade. (4) As flank security for a division. In seven exercises the squadron was employed without the air cavalry troop four times, and twice with a single ground troop attached to a brigade.

There appears to be a dichotomy in thought about the employment of the squadron. It would appear, on the surface, that the squadron should be employed as a unit. The ARTEP lists all except one required mission as squadron missions, however, FM 17-95 says that the squadron or any one of its troops, can be temporarily attached to or placed under the control of a brigade.[29] The conclusions one might draw from the instruction at the Command and General Staff College that the employment of the squadron piecemeal is acceptable and often desirable. The student leaves the college believing that the methods of employment taught at the college, and listed above, are the preferred methods of employment.

Although there are no readiness category standards officially associated with the ARTEP, it is virtually impossible to disassociate readiness from this evaluation. Comments from my own after action report for the first test ARTEP, conducted in October 1974, state:

> "ARTEP is a test (evaluation if you will) or an examination of a unit's capability to perform under pressure in combat. A unit that cannot demonstrate its ability to perform required missions will be declared non combat ready and subjected to intense training in its weak areas."

The ARTEP tests the unit in the missions that are considered

essential for it to support its parent unit.[30] A conclusion is that the tasks not listed in the ARTEP are secondary--important but not essential. This could be a critical distinction, as the tasks listed in FM 17-95 but not included in the ARTEP are area and route reconnaissance, flank guard, and area security. Advance guard and night active defense are essential for the troop, but are not listed as squadron tasks. The general conditions for the active defense have the troop acting as part of the squadron, but the general conditions for the advance guard have the troop acting as a separate unit.[31] The general conditions for the air cavalry troop's mission of reaction force are cryptic, "working in support of its higher headquarters."[32] A possible conclusion might be that these missions would or could be performed by a detached troop in support of the division or a brigade. The use of the air cavalry troop is mentioned only once in the squadron tasks.

The instruction at the Command and General Staff College is essentially in line with the ARTEP, but does not, in its classroom exercises, include the other missions listed in FM 17-95.

There are a number of army officers who believe that the air cavalry troop should be employed as a separate unit. There are aviation officers who feel that the non-aviation rated squadron commander is not knowledgeable enough to employ the air cavalry troop and there are armor officers who feel that aviation rated officers, even when also armor rated, are not qualified to employ the armored cavalry troops. Some feel that the unit is too valuable to belong to only one unit and should be available to the entire division. Some

of the problems are articulated in the following comments BG Hugh J. Bartley wrote in 1975:

> "I would like to call to the attention of Armor readers an erroneous - and possibly damaging - belief which many armor officers appear to hold: that the air cavalry troop is really under the control of the squadron commander...The air cavalry troop of an armored division is a resource primarily of the division commander and only incidentally of the squadron commander...It is just that the air cavalry troop represents too large and too valuable a portion of the division commander's aviation assets to expect him to pass control of it to his squadron commander...I do not believe the division commander will routinely, or even often, permit one of his lieutenant colonels to determine and supervise Delta Troop's tactical employment...The squadron was a convenient place to put the air cavalry troop when the latter was introduced into the division, for the squadron was a thorough combat unit with the esprit and professional attitudes one hoped the troop would catch and hold. It also provided an administrative base for an unique unit...Because Delta Troop is so rich an asset, it disappears entirely, or nearly so, from the squadron commander's hands. Yet he needs some organic air, perhaps an air platoon engineered directly to his requirements but modest enough in size to remain a squadron asset...If those changes are not made, the cavalry squadron commander should, at least, stop deceiving himself as to his role in combat; he will baby-sit - not command - Delta Troop. And armor officers should accept this rude fact in their thinking and writing."[33]

Cpt Joe D. Rasnick, wrote in response:

> "It appears that the author does not realize that the cavalry squadron is part of the division base...and the entire squadron is directly responsible to the division commander...I will simply say that the cavalry squadron provides reconnaissance and security for the division, and the delta troop is an absolute necessity in order for the squadron to properly perform its difficult task."[34]

Maj Robert W. Garrot, Jr. also responded:

> "I feel that what the general has said is the reality of the situation, but not a reality that Armor officers should accept. This situation has developed because of the lack of professional knowledge (outside of MOS 1204 - Armor Reconnaissance Commander) of what to do with the cavalry squadron. In the classroom at Leavenworth, the cavalry squadron has become another combat maneuver battalion that certainly does not need an air cavalry troop. Yet, if the

> armored cavalry squadron is to adequately perform its role of reconnaissance and security on today's battlefield, it will need the capabilities of the air cavalry troop, just as the air cavalry troop needs the capabilities of a ground unit. Ground cavalry no longer enjoys a significant mobility differential over the support unit. Air cavalry provides this needed mobility differential. At the same time, air cavalry does not now have a real night or adverse weather operational capability. It will do the division commander little good to put air reconnaissance into an area only to lose continuity of the reconnaissance effort when the weather closes in, or when the sun sets. Ground and air cavalry under the same commander will provide this capability. While air cavalry has the ability to mass rapidly, these formations still do not have the sustained combat power necessary to develop the situation for the supported commander. Armored cavalry, with air cavalry assets, has this capability..."[35]

TC 17-36, The Conceptual Armored Cavalry Platoon Test, appears to be the basis for the restructuring of the armored cavalry squadron as part of the "Division Restructuring Study," (DRS), now being conducted. The composition of the platoon would be as shown in figure 4-7. The air cavalry troop is deleted from the squadron TOE and becomes a seperate unit within the division base, or as the base for a new divisional attack helicopter battalion. The deletion of the air cavalry troop appears to be the result of the controversy within the army and an honest desire for the best employment of aviation assets.[36]

It seems almost a certainty that the air cavalry troop will be taken from the squadron. This is actually happening in some divisions where the air troop is either taken from the squadron and placed under a provisional aviation battalion; or has become the nucleus of a divisional attack helicopter battalion.

The conceptual platoon differs from the present European modified platoon in that the European modified platoon has scouts

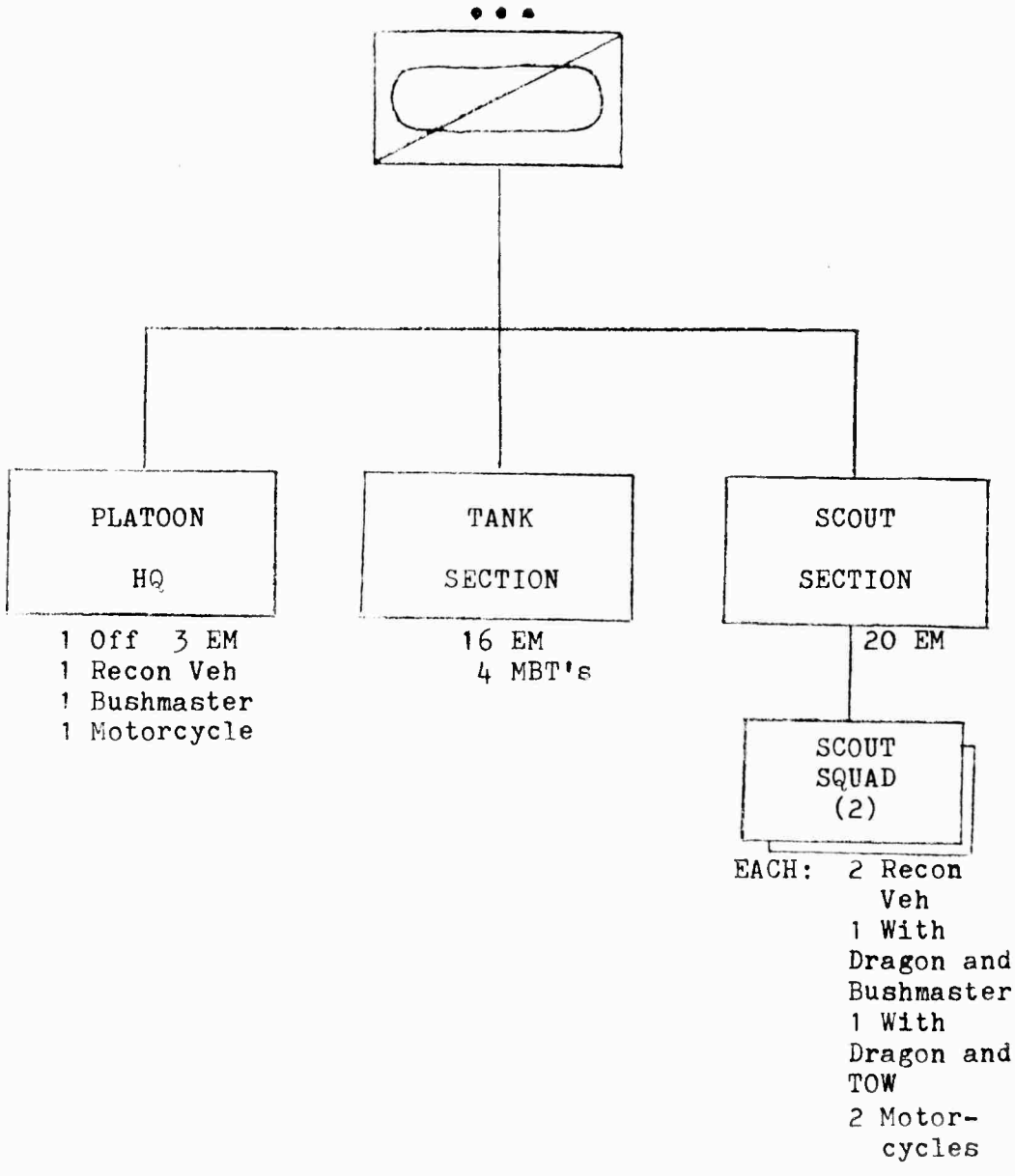


Fig. 4-7

Conceptual Armored Cavalry Platoon

mounted in M-551 Sheridans, hardly a vehicle designed for stealth. The conceptual platoon puts the scouts back in ground scout vehicles. However, the armament, three with 25-mm Bushmaster cannons, two with 25-mm Bushmasters and TOW launchers, and the addition of another tank to the tank section, imply a predominantly combat role. The DRS/conceptual platoon deletes the infantry squad and the mortar section. (The mortar sections are consolidated into a platoon at troop level.)[37]

The DRS platoon would create a squadron that is easily converted into a light armor, tank heavy task force. The squadron would have eighteen TOW launch vehicles, forty-five 25-mm Bushmasters, and thirty-six tanks. (A DRS tank battalion would only have thirty-six tanks and twelve TOW launchers. The present tank battalion has only fifty-four tanks.)

ARMORED CAVALRY SQUADRON MISSIONS

Missions that the armored cavalry squadron is trained to perform are reconnaissance and security.

Route reconnaissance is conducted to obtain detailed information of a specific route and the adjacent terrain which could influence movement. It can be oriented on a road, an axis of advance, or general direction of approach. It can also be directed to obtain information of an enemy force moving along a specific route or to determine the best locations for obstacles. A route reconnaissance is not normally performed by an armored cavalry squadron, but by giving the mission to a troop. It may be conducted as part of a zone reconnaissance.[38]

Zone reconnaissance is a detailed search of all natural and man-made features within specified boundaries. It is thorough and time consuming, and is normally assigned when the enemy situation is in doubt. The squadron is employed on line. It conducts the reconnaissance as though it were a movement to contact.[39]

Area reconnaissance is conducted to gather specific information about a designated area. The reconnaissance is conducted as a zone reconnaissance, except for the movement to and from the area to be searched.[40]

The screen is a series of mutually supporting observation posts spread across a large expanse of terrain. It is designed to give early warning and report enemy information. It can report lucrative targets for other units or adjust indirect fires. If within the screening force's capability, it can destroy enemy reconnaissance units.[41]

The purpose of a guard operation is to provide early warning, reaction time and maneuver space to the front, flank or rear of a moving or stationary force.[42]

The advance guard for a moving force is conducted in the same manner as the zone reconnaissance or movement to contact. It attempts to insure the uninterrupted movement of the main body. It will attempt to overcome light resistance and will conduct hasty attacks in order to do this.[43]

The flank guard occupies a series of battle positions as the main body moves. It is also responsible for clearing the area between the battle positions if necessary. The flank guard fights to

protect the flank of the division and, if necessary, delays from battle positions back to the main body in order to give the main body commander time to organize a defense. The flank guard for a moving force is conducted in the same manner as the zone reconnaissance.[44]

The rear guard for a moving force establishes a series of battle positions that it occupies as the main body moves. For a stationary force the rear guard deploys and defends. The basic methods of conducting the rear guard are the defense or the delay.[45]

The mission of the covering force has been mentioned. It basically includes a form of the screen, guard, or delay.

Cavalry units frequently conduct hasty attacks as part of other operations. They occasionally are required to conduct a deliberate attack as an economy of force. Cavalry can participate in exploitation and pursuit, normally as part of a larger force. The exploitation and pursuit are conducted in the same manner as the movement to contact or the zone reconnaissance.[46]

The armored cavalry squadron will frequently conduct a hasty defense as part of other missions. The defense is active. The squadron usually defends with troops on line with positions designated in depth. Hasty obstacles are employed. The air cavalry troop can be employed as a reaction force or stand-off force, utilizing its anti-tank guided missiles or other weapons.[47]

The purpose of the delay has been described. The squadron delays with troops on line and fires from battle positions at long ranges. The squadron moves rearward only when necessary, to its next line of battle positions. A high risk delay is when the squadron

must hold the enemy forward of a series of lines for a specified time. In a high risk delay the squadron may have to accept decisive engagement.[48]

The purpose of rear area security is to protect units behind rear boundaries of brigades, installations, or lines of communications.[49]

The objective of describing cavalry missions has been to help narrow the actual tasks to those maneuvers the squadron is required to perform in support of the division.

In their most basic form, the missions that the squadron must be able to perform are: Zone reconnaissance, screen, and delay.

It would seem reasonable for the ARTEP to test only the zone reconnaissance, as the other types of reconnaissance are conducted in the same manner. Only the objectives of the reconnaissance are different.

The screen is a separate mission. It is necessary since the screen is also used in the defense, delay, and covering force operation. An exposed flank will often develop, and the screen is the best method of security when the danger is light, when the flank is long, or when security is needed in a hurry.

The advance guard and the flank guard are conducted in the same manner as the zone reconnaissance. The movement to contact, which is an ARTEP mission, is also conducted in the same manner as the zone reconnaissance. The advance guard mission is conducted in the same manner as the movement to contact and the zone reconnaissance.

The high risk delay is conducted as a combination of a normal delay and the defense.

The area security mission is one that can be conducted by any combat unit. Rear area units are responsible for rear area security. When the situation requires additional help, tactical units may be required to assist. In emergencies, tenant units within the rear area, reserves, or other available combat units may be used temporarily.

The hasty attack is important because its conduct is inherent in many of the other squadron missions.

The delay is important because it uses the techniques of the defense and is part of other missions such as the covering force, guard and withdrawal.

Reconnaissance is performed to assist the commander in preparing the battlefield. Reconnaissance is also a part of security. The two are not mutually exclusive but mutually supporting. If tank or infantry units are used to perform reconnaissance and security they will be unavailable to perform their primary missions. To use these units in the movement to contact or delay would degrade their combat power and violate the principle of using the lightest forces capable of avoiding decisive engagement. Are these missions necessary? Is a specialized unit necessary to perform them? The answer seems logically to be yes.

PROPOSED SQUADRON ORGANIZATIONS

At the outset of a war, and well into it, the division commander may find himself facing a combined arms army of three or more

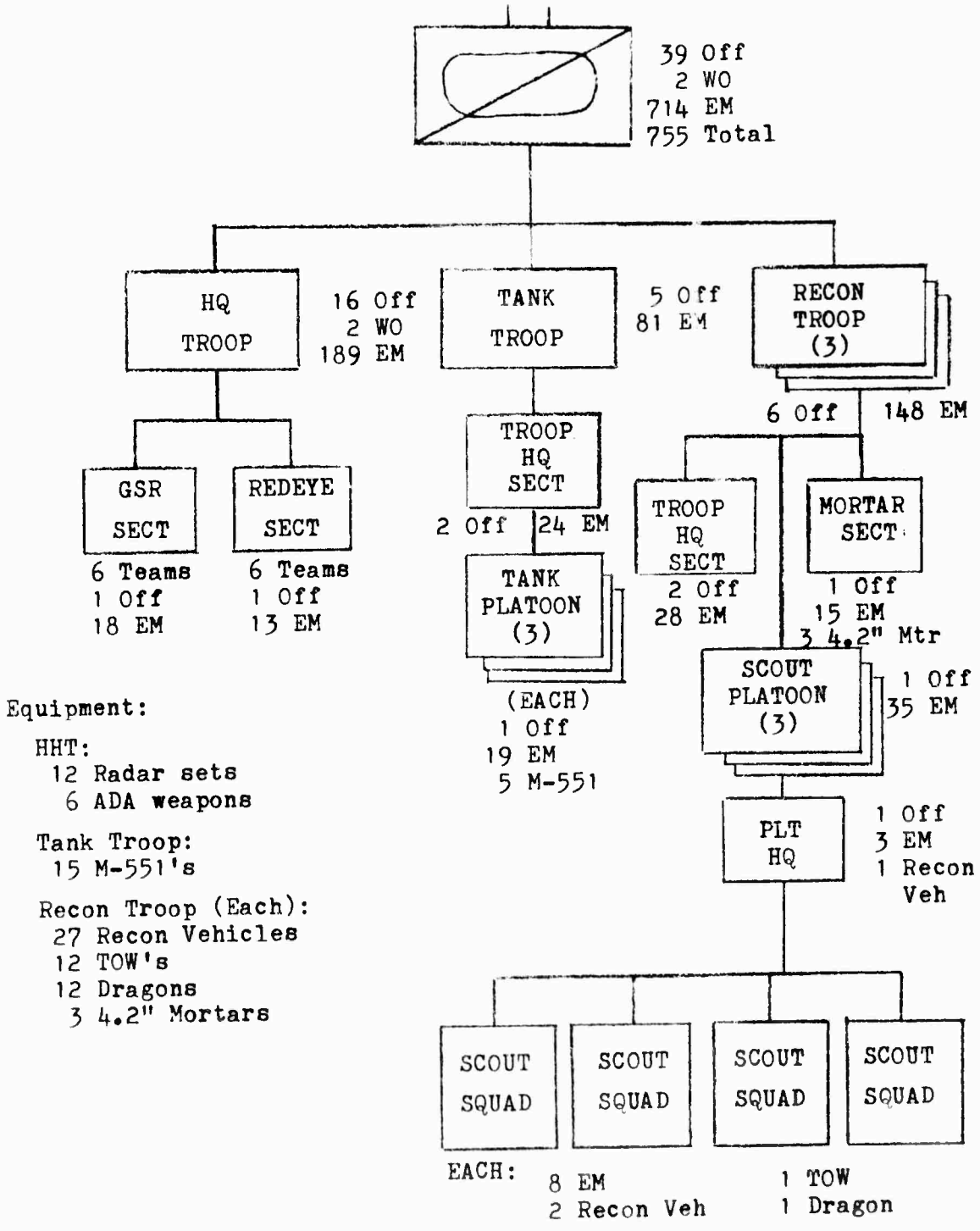
divisions. His initial concern will be to mass his combat power to stop the enemy, but at some point he will require a force that is specifically trained for and capable of performing multiple functions. For discussion I am proposing three organizations. One of the three will provide the ability t meet the commander's multiple function requirement.

The three organizations that I propose to discuss are the:

1. Light armor reconnaissance squadron (See Fig. 4-8).
2. Heavy armor cavalry squadron (See Fig. 4-9).
3. Current TOE cavalry squadron (modified) (See Fig. 4-10).

The Soviets employ light reconnaissance units well forward of the advance guard in the movement to contact and well forward of defensive positions. In the offense they are used only against light resistance. In the defense they are used to cause the deployment of enemy reconnaissance units. They are maneuverable enough to take advantage of all types of terrain, to observe the enemy and not allow themselves to become decisively engaged. The light armor reconnaissance squadron I propose is similar in organization and employment to the Soviet reconnaissance battalion.

Exposed flanks or other critical situations often occur before intelligence means can predict them. The ability to maintain freedom of maneuver is essential. In order to avoid defeat or delay, the commander will require the rapid movement of combat power from one area of the battle to another. The light armor reconnaissance squadron will provide a high degree of mobility and air transportability that will allow it to move quickly to wherever needed. In other



Equipment:

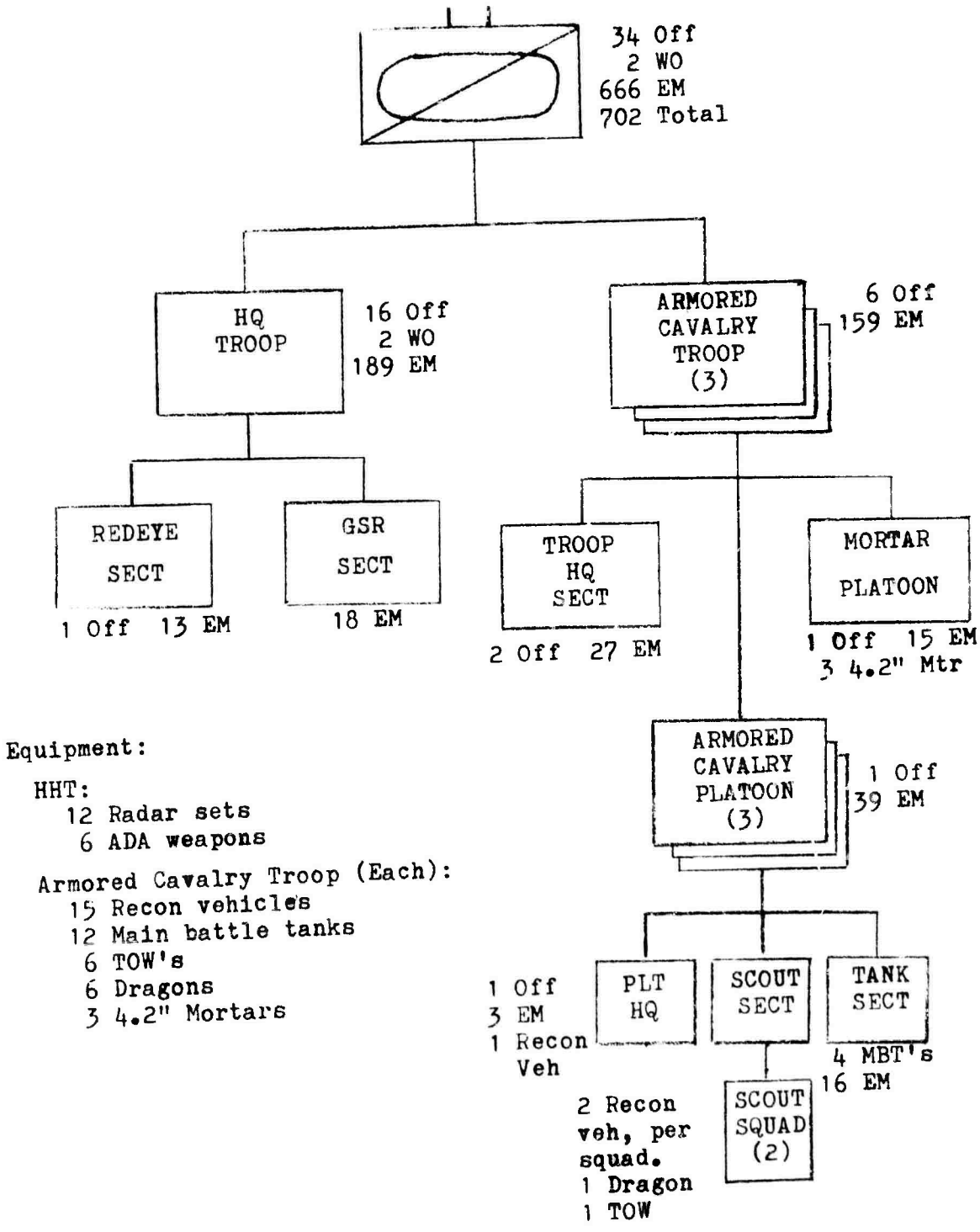
HHT:
12 Radar sets
6 ADA weapons

Tank Troop:
15 M-551's

Recon Troop (Each):
27 Recon Vehicles
12 TOW's
12 Dragons
3 4.2" Mortars

Fig. 4-8

Light Armor Reconnaissance Squadron



Equipment:

HHT:
- 12 Radar sets
- 6 ADA weapons

Armored Cavalry Troop (Each):
- 15 Recon vehicles
- 12 Main battle tanks
- 6 TOW's
- 6 Dragons
- 3 4.2" Mortars

Fig. 4-9

Heavy Armor Cavalry Squadron

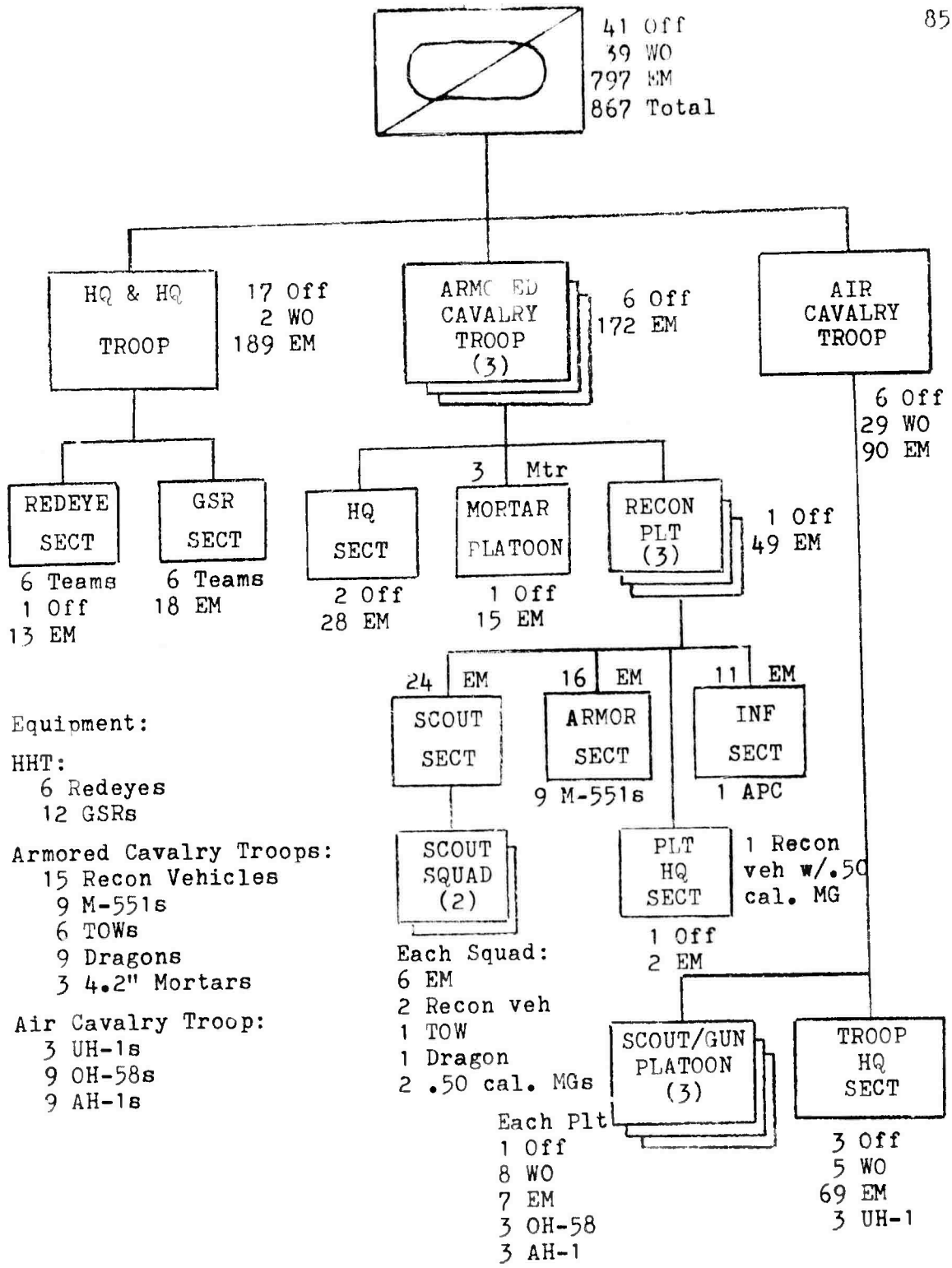


Fig. 6-1

Current TOE Squadron (Modified)

cases, the requirement for continuous ground reconnaissance within the main battle area, within and forward of the covering force area is important so the commander can see the battle. This unit also provides the stealth that is necessary to perform reconnaissance and counter-reconnaissance. Light armored vehicles are difficult to detect because of their size, mobility, and silence. The M-113 is quieter and more maneuverable than the M-60 or M-551 and more sustainable for long periods. There is no reason to believe that any proposed reconnaissance vehicle will not equal or surpass the performance of the M-113. There could be a degradation of the present combat power of the squadron (fifteen tanks vs twenty-seven), but this would be compensated for by the commander's ability to rapidly employ this force wherever needed.

The heavy armor cavalry squadron provides the commander with a unit that is more tank than armored cavalry, but one that provides him with increased raw combat power. In Europe, as in the Middle East, the primary threat to any force is the proliferation of tanks and anti-tank guided missiles. In order for a unit to be effective in the multiple missions that can be expected, it must have the power to overcome an almost overwhelming amount of armor and armor killing capability. The squadron has more tanks than the DRS tank battalion and only eighteen less than the present tank battalion. With the TOWs and Bushmasters when available, the squadron easily becomes the most potent force in the division. This unit would be formidable in security operations and provide the commander with a powerful reaction force both in the main battle area and in the covering force area.

There will be a tremendous temptation to use this unit in a strictly combat role at the expense of other missions. This unit could be used in limited objective attacks and counterattacks, as the nucleus for an exploitation or pursuit force, and as an economy of force unit in offense or defense. Although there would be a loss of mobility, stealth and ability to conduct reconnaissance, the other missions would be enhanced. This may be desirable, but the commander must be certain that he understands and accepts the trade-off. The division commander must also realize that his squadron, once used in the covering force or as a maneuver battalion, will fight and may become combat ineffective for other missions.

The present TOE cavalry squadron is frequently stripped of its air cavalry troop and often assigned missions as an afterthought. It is often perceived as not powerful enough to be a maneuver battalion or perform security missions, and not maneuverable enough for reconnaissance. Division and squadron commanders have struggled to make a more viable and flexible force of this unit and there have been many experiments with the air/ground cavalry team attempting to make it more potent. The air/ground team can give the commander that flexibility for which he has been looking. No matter what mission is assigned, he has both reconnaissance and security capabilities with formidable power for other offensive and defensive missions. Rather than increasing the span of control for a ground troop commander, a dedicated air cavalry platoon enhances it by the improved ability to control his unit. The ground troop commander is able to cover more area in a shorter time and yet is able to fight decisively.

The employment concept is simple. If ordered fr[illegible] one flank of the battlefield to the other, the dedicated air cavalry platoon covers the movement of the ground element, covers the area until the arrival of the main force, extends a screen and adds punch to the troop's fighting ability. By working with t[illegible] ground troop commander there is no wasted motion or duplication of effort and the aircraft fly only when necessary. It will take away some of the division commander's ability to utilize the air cavalry troop as his personal unit, but there are no restrictions on reconstituting the air cavalry troop for other specific missions. The use of these teams will be dependent upon the weather and maintainance capabilities more than other units.

Using the European and Middle East scenarios, the next chapter will evaluate the mission capabilities of the three proposed organizations.

CHAPTER 4

FOOTNOTES

[1]U.S. Army Armor School. Armor Reference Data, St 17-1-1, Vol II, The Army Division. (Ft.Knox: U.S. Army Armor School, 1976), p. 1.

[2]Ibid

[3]U.S. Army Command and General Staff College. Operations, RB 100-5-1. (Ft. Leavenworth: U.S. Army Command and General Staff College, July 1976), p. 4-7.

[4]U.S. Army Armor School. ST 17-1-1. pp. 119-129.

[5]U.S. Army Armor School. ST 17-1-1. pp. 130-140.

[6]U.S. Army Armor School. ST 17-1-1. pp. 95-107.

[7]U.S. Army Armor School. ST 17-1-1. pp. 39-53.

[8]U.S. Army Command and General Staff College. RB 100-5-1. pp. 4-9 - 4-12.

[9]U.S. Army Command and General Staff College. Brigade and Battalion Operations, RB 100-6. (Ft. Leavenworth: U.S. Army Command and General Staff College, Septemcer 1976), p. 1-3.

[10]U.S. Army Command and General Staff College. RB 100-5-1. p. 4-2.

[11]U.S. Army Command and General Staff College. RB 100-6. pp. 1-3 - 1-4.

[12]U.S. Army Command and General Staff College. RB 100-6. p. 1-5.

[13]U.S. Army Command and General Staff College. RB 100-5-1. p. 4-11.

[14]U.S. Army Command and General Staff College. RB 100-6. p. 1-5.

[15]U.S. Army Command and General Staff College. RB 100-5-1. p. 4-11.

[16]Ibid

[17]U.S. Army Command and General Staff College. RB 100-5-1. p. 4-12.

[18]U.S. Army Command and General Staff College. RB 100-5-1. p. 5-2.

[19]U.S. Army Command and General Staff College. RB 100-6. p. 1-7.

[20]U.S. Army Command and General Staff College. RB 100-5-1. p. 5-10.

[21]Ibid

[22]U.S. Department of the Army. Rear Area Protection RAP Operations. (July 1970), p. 3-6.

[23]U.S. Army Command and General Staff College. RB 100-5-1. p. 6-1.

[24]U.S. Army Command and General Staff College. RB 100-5-1. pp. 6-2 - 6-3.

[25]U.S. Army Command and General Staff College. RB 100-5-1. p. 6-4.

[26]Ibid

[27]U.S. Army Armor School. How To Fight Manual Cavalry, FM 17-95 (Final Draft). (Ft. Knox: April 1976), pp. i-ii.

[28]U.S. Department of the Army. Army Training and Evaluation Program For Armored Cavalry Squadron and Armored Cavalry Troop, ARTEP 17-55, Test Edition, in Two Volumes, Vol II. (June 1976), p. i.

[29]FM 17-95. p. 3-12.

[30]U.S. Department of the Army. Army Training and Evaluation Program For Armored Cavalry Squadron and Armored Cavalry Troop, ARTEP 17-55, Test Edition, in Two Volumes, Vol I. (June 1976), pp. 1-1 - 1-2.

[31]ARTEP 17-55, Vol II. pp. 8-8-1 and 8-15-1.

[32]ARTEP 17-55, Vol II. p. 8-9-1.

[33]BG Hugh J. Bartley. "The Delta Troop Myth." Armor. (LXXXIV. No. 4. 1975), p. 29.

[34]Cpt. Joe D. Rasnick. "Letters." Armor. (LXXXV. No. 1. 1975). p. 3.

[35]Maj Robert W. Garrot Jr. "Letters." Armor. (LXXXV. No. 1. 1975), p. 3.

[36]U.S. Army Command and General Staff College. "U.S. Army Armor Center Pamphlet, The Armored Cavalry Platoon - Present and Future." Selected Readings in Tactics, RB 100-2, Vol II. (Ft Leavenworth: U.S. Army Command and General Staff College, May 1976), pp. 4-9 - 4-23.

[37]Ibid

[38]FM 17-95. pp. 5-17 - 5-22.

[39]FM 17-95. pp. 5-23 - 5-33.

[40]FM 17-95. pp. 5-34 - 5-40.

[41]FM 17-95. pp. 6-13 - 6-22.

[42]FM 17-95. p. 6-23.

[43]FM 17-95. p. 6-25.

[43]FM 17-95. p. 6-25.

[44]FM 17-95. pp. 6-25 - 6-26.

[45]FM 17-95. pp. 6-31 - 6-32.

[46]FM 17-95. pp. 6-42 - 6-45.

[47]FM 17-95. pp. 6-47 - 6-58.

[48]FM 17-95. pp. 6-59 - 6-61.

[49]FM 17-95. pp. 6-62 - 6-65.

[50]ST 17-1-1, Vol II. pp. 39-53.

[51]U.S. Department of the Army. VTAADS Consolidated Change Document 3, MTOE 17105HFC04 FC0376, 1st Squadron, 4th Cavalry, (May 1976), pp. 1-58.

CHAPTER 5

DISCUSSION

INTRODUCTION

The purpose of this chapter is to select one squadron from the three proposed in the preceding chapter. This chapter will begin with a brief discussion of the terrain environment and comparative weapons systems. The type organizations will then be discussed performing essential missions, against probable Soviet deployment. The comparison will avoid detailed discussion of squadron support elements as the study is primairily concerned with combat elements of the squadron. After a specific discussion of each type squadron, an overall comparison will be made and conclusions will be drawn. It may be, that a final selection will evolve from the desirable characteristics on one or all three type squadrons.

In determining a mutual ground for the discussion, the following assumptions have been made:

(1) An acceptable combat power ratio for the squadron in the defense is 1:3 against a typical motorized rifle division.

(2) Acceptable combat power ratios for the delay can be higher than 1:6 and will be condidered in the discussion. Delay forces may also be able to temporarily halt enemy forces from prepared delay positions at 1:3 and this figure will also be used.

(3) Combat power ratios for a meeting engagement will be considered at 1:1.

(4) Division frontage for the defense or delay will be forty-five kilometers.

(5) With the U.S. corps attacking a combined arms army of three motorized rifle divisions and one tank division, the division will be attacking one forward motorized rifle division with three motorized rifle regiments forward, one divisional tank regiment and one army tank regiment in reserve.

(6) When attacking, friendly elements must achieve a combat power ratio of 6:1 at the point of decision to be successful.

(7) In the delay or defense the division will face a combined arms army of three motorized rifle divisions and one tank division.

(8) The Soviet reconnaissance battalion will be as discussed in Chapter 3.

(9) Both Soviet and U.S. units will be considered at full strength.

TERRAIN

Terrain in the Middle East is far different than in Europe, therefore tactics will be modified to meet terrain differences. Soviets modify offensive tactics for desert operations by: (1) Conducting more frequent hasty attacks. (2) Increased emphasis on night operations. (3) Employing divisions over wider frontages, possibly deleting second echelons, and using airborne and airmobile operations to secure flanks. (4) Battalions will conduct independent operations to secure flanks. (5) Battalions will conduct independent operations leaving wide gaps between columns. (6) During

the attack the infantry may dismount and follow tanks. Defensive desert operations are modified by: (1) Designing fires to kill tanks and orienting the fires on tank avenues of approach. (2) Retaining large mobile reserves in depth for counteratacking flanks. Soviet opponents need to recognize the modifications of tactics from one area to another.

The European theater offers numerous locations in which a defender can pre-select positions and employ medium range (tank) and long range (ATGM) direct fire weapons. Many other sites provide positioning of medium range antitank fires and ambushes with mutually supporting weapons systems. Numerous rivers and forests create obstacles that assist in canalizing forces, and favor employment of defense in depth. The mountain ridges and forests will also assist in canalizing forces since the height of some ridges, and the thickness of some forests make it too difficult to traverse with either wheel or tracked vehicles. The defender can often employ economy of force units on (almost) untrafficable terrain, and mass forces on the higher speed approaches. The terrain offers both cover and concealment.

For the attacker, the terrain has gaps between high points and forested areas. These gaps allow high speed movement while the high terrain provides overwatch positions that can assist the movement of assault forces. From these positions ATGM's can be employed at maximum and medium ranges to assist tanks and infantry while they move from one concealed position to another. The terrain is generally favorable to the employment of long range indirect fire artillery. Artillery and tactical air observers will find it difficult, however,

to identify easily hidden targets.

In the Middle East there is concealment behind every rise in terrain providing ATGM and tank positioning but little cover or overhead concealment. Terrain will be controlled through strong points. Mutually supporting direct fire weapons can be backed up by artillery fired from frontal cover. Tactical air and attack helicopters can also provide anti-armor fires and will have almost unlimited observation. There are fewer obstacles to canalize the enemy, but strategic vantage points will assist in keeping the enemy under observation. The defender must take advantage of every usable piece of terrain and conduct vigilant and continuous reconnaissance.

The attacker can take advantage of the open terrain to conduct wide frontage high speed sweeps and flank attacks in order to avoid concentrated fire and aerial interdiction. Speed and suppression can assist the advance. Stealth may be almost nonexistent, but proper utilization of available terrain can assist movement and avoidance of frontal or flank engagements. Tactical air and artillery can suppress long and medium range weapons and assist the attack. Since there is concealment but no overhead cover, anti-air operations become critical.

RELATIVE WEAPONS SYSTEMS

Soviet artillery generally "ranges" U.S. artillery but will not be as much a factor as will be the amount of artillery available. It must be assumed that the Soviet reconnaissance battalion will have more tubes available to support its operations than will U.S. units.

Air defense weapons are important for both U.S. and Soviet forces, because both use the helicopter in reconnaissance, airmobile, and anti-armor operations. When operating (semi) independently, the U.S. cavalry squadron will have organic small arms, M-60 and .50cal. MG's, Redeye, Bushmasters and Stingers when available. It is possible that Vulcan(s) could be attached to the squadron. Soviet reconnaissance units will have comparable systems, small arms, 14.5 and 7.62mm MG's, and SA-7 GRAIL. It is possible, that these reconnaissance units could have ZSU-57-2, ZSU-23-4, or ZSU-23-2 attached. The problem is more acute for U.S. air units because the Soviets have more back-up systems and in larger quantities. Without adequate suppression, U.S. air units will live in an extremely hostile environment. Greater reliance will have to be made in: (1) The suppression of enemy air defense weapons by attack helicopter, tactical air, and artillery. (2) Air to air combat by opposing attack helicopters.

Soviet helicopters are armed with machineguns, cannons, ATGM's and rockets. Their primary attack helicopter is the HIND-A (being replaced by the higher performance HIND-D) which has a combat radius of 250-NM, cruising speed of 122 knots and carries a full complement of weapons systems and a troop load of eight to twelve. Its primary weakness is that it is a large aircraft and not designed as a specific mission aircraft.

The U.S. attack helicopter the AH-1S (TOW Cobra) is designed primarily to destroy enemy armor. It can fly both day and night,

but its night combat capability is limited. It will cruise at 125 knots with a fuel endurance time of approximately 2.5 hours (2 hours NOE). Available weapons systems include high rate automatic gun, grenade launcher, TOW launcher (8 TOWs), and 2.75" rocket launchers. The U.S. advance attack helicopter (AAH) now under contract will have better night and adverse weather condition fighting capability. Its cruising speed will be 145 to 175 knots and it will also be capable of carrying eight TOWs. The U.S. presently has a superiority in numbers of available attack helicopters. The Soviets are, however, striving to achieve parity in attack and lift helicopters.

Air to air combat between helicopter and high performance aircraft, and between helicopter and helicopter is being tested and evaluated. Tests so far, have shown that high performance aircraft are ineffective against well trained helicopter crews. This means, that defense against helicopters will be primarily ground fire and other helicopters. It is possible to visualize assault helicopters being "covered" by attack helicopters not only for suppression of ground fire but suppression of hostile air. It is also possible that air scout/gun teams from both sides will hunt for each other as well as enemy ground forces.

At the reconnaissance unit level, the U.S. is superior in anti-armor weapons. The U.S. LAW/Dragon system is superior to the Soviet RPG-7. The M-551 and M-60A2 are superior to the PT-76. The M-60A1 is at least equal to the T-62 and maybe equal to the T-72. In larger maneuver units the Soviets will have numerical superiority but not at the reconnaissance battalion level. The squadron may

face three divisions, each with a reconnaissance battalion forward. For comparison, three Soviet reconnaissance battalions reinforced with one tank platoon and motorized rifle platoon, would have approximately 21 PT-76s, 9 medium tanks, 18 Saggers, and 18 RPG-7s. Each U.S. squadron will have:

Unit	Tanks	TOWs	Dragons	Aircraft TOWs	LAWs	Total
Light Recon Squadron	15 M-551s	36	36	0	36	87+LAWs
Heavy Cav Squadron	36 MBTs	18	18	0	18	72+LAWs
Current TOE Squadron (Modified)	27 M-551s	18	18	72	18	63+LAWs +Air TOWs

LIGHT ARMOR RECONNAISSANCE SQUADRON

1. Introduction. This squadron is primarily designed for reconnaissance but with a large number of anti-armor weapons it is capable of performing other combat missions. Mortars are consolidated at the troop to provide heavier volumes of fire and to shorten the platoon leader's span of control. The M-551s have been consolidated into a troop with three platoons of five tanks each to provide centralized control and training. The tank troop can be employed as a unit or the platoons can be attached to the reconnaissance troops. The span of control for the reconnaissance troop commander will be four to five elements, and the span of control for the platoon leader will be one section of four scout squads.

2. Covering Force. The squadron can screen forward of the covering force or it can be a part of the division force. As part

of the covering force it would be required to delay, or defend in a high risk situation. Depending on the stage of the enemy attack, the squadron could be facing enemy reconnaissance units, advance guard battalions, a regiment in a reconnaissance in force, or main force elements.

a. Screen. In a screen the primary duty is to provide early warning. Fighting will be limited to counter-reconnaissance and adjustment of long range indirect fires. The squadron will deploy troops, platoons, and scouts on line in a series of listening or observation posts. With twenty-four reconnaissance vehicles per troop, the area to be screened will be increased 100% over current ground capabilities. The density of reconnaissance vehicles will be approximately one vehicle per 625 meters and one scout squad per 1250 meters across a front of 45 kilometers. Tank platoons can be kept under squadron control or attached to the troops. In either situation they should prepare firing positions that will be occupied as necessary. The positions will be located to provide overwatch and assist in extricating the scouts on observation posts, or to fight if the mission is changed to delay. The available weapons systems per troop, with attached tank platoon is: 5 tanks, 12 TOW scouts, and 12 Dragon scouts.

The first enemy elements the screen could meet are reconnaissance elements, the advance guard, or regiments in a reconnaissance in force. The enemy forces will be moving swiftly in columns of companies and battalions, reconnaissance patrols forward, in an attempt to develop a hasty attack. With more vehicles per kilometer

of frontage, detection should be successful and long range fires employed. Utilizing organic mortars and quick fire artillery against targets beyond 4,000 meters, the squadron will not only be able to observe, but to employ fires without betraying its locations. Soviet units may surmise, that they are engaging security forces and guess at the locations but will be forced to prepare for a hasty attack. The screening force will be able to make enemy main forces deploy by employing long range indirect fire and direct fire, if necessary, but will be unable to continue a fight unless the commander is willing to accept the risk. Since the screen is only a reconnaissance/warning mission, the screen will be successful. It will be up to the division commander to change the mission to delay or withdraw the screen.

b. Delay. In a delay the squadron will be employed on line with at least two rearward positions prepared. Each position will be prepared in depth to allow movement to multiple firing locations within the area. One tank platoon should be attached to each reconnaissance troop to give it medium range direct fire capability. The delay will be organized the same as for a defense, with long and medium range weapons located to fire from overwatch at maximum ranges to cover withdrawal. The delay positions will be occupied to fight decisively enough to accomplish the mission yet not lose freedom to echelon to the next delay position. The thirty-six TOWs and the fifteen M-551s will provide excellent long range capability and the thirty-six Dragons will provide fair medium range capability. The thin armor of the M-551s and TOW carriers will make them vulnerable

to suppressive fire.

The covering force is required to make the enemy deploy and echelon, and can only do this if it is powerful enough to stop all but main body elements. The Soviets know we will have a covering force and will anticipate it. They can be expected to advance with reconnaissance patrols leading an advance guard motorized rifle regiment per division. This means that from the beginning, the covering force will be facing three motorized rifle regiments. The squadron is not prepared to face three regiments in a "one-on-one" situation as the division covering force, but as part of a division covering force with a sector of 15 kilometers will have combat power equal to or greater than other covering force units. In this situation it will be fighting a forward regiment. It will have less combat power in terms of fire power but with the multiplier of prepared positions giving it at least a 1:3 advantage, will be more powerful than the opponent.

I think that enemy reconnaissance units would then halt temporarily and try to find weak points or assailable flanks. The greater number of reconnaissance elements in the squadron would enable it to cover more terrain and avoid these unguarded flanks. The enemy would be forced into a more deliberate attack by the advance guard which will try to overwhelm its opposition. The advance guard of one motorized rifle regiment, three battalions with tank companies forward, will not reach a 3:1 combat power ratio even if a battalion attacks a troop, and will not reach the 3:1 ratio unless a battalion can isolate a platoon. A problem can arise, if enemy forces advance

over multiple routes in battalion and company columns to mass near objectives. It is possible, that the squadron could not mass enough combat power at critical locations while spread across fifteen kilometers of terrain. To prevent this, the squadron would have to echelon itself in order to permit withdrawal, and maintainenace of control, and avoid sub elements becomming isolated trying to break contact. In echeloning, the commander would have to decrease the density of vehicles per kilometer of frontage. An enemy success might cause a collapse of the covering force. If this happened, the commander would have to either withdraw the covering force or change the mission to a high risk delay or defense.

If the delay force started to lose cohesion, the covering force commander(s) would have to establish a defense on the next delay position. The success of the enemy advance guard would bring even heavier engagement by first echelon attack forces and the echeloned delay force would have to try and halt the enemy and try to determine where the attempted breakthrough would take place. The thin armor of the reconnaissance vehicles and M-551s might cause isolated elements to be lost, but whatever remained of the squadron would be as viable a fighting force as the remaining maneuver battalions in the covering force. The success of this high risk delay situation will not be dependent upon the strength of the covering force, but the ability of the enemy to force its will.

The high risk delay is a timed delay. It differs from a normal delay in that it requires the delay force to keep the enemy forward of a line for a specified time period. The commander will want to

prepare stronger positions than for a normal delay, and he will want a force that is capable of heavy engagement. Although the light armor reconnaissance squadron has excellent direct fire power, the thin armor of the weapons carriers and the gap in the direct fire medium ranges will put it at a disadvantage. The squadron's mobility will be an advantage. The ability of this squadron to delay in a high risk situation will be determined by the degree of engagement that it requires. Theoretically it could stop a regiment, but could not halt a continued massing of enemy forces.

3. Flank Guard. This is a security and a fighting force. It is possible for a gap to develop between the force being guarded and the adjacent force, and the enemy may try to take advantage of the open flank. (This applies to both offensive or retrograde movement.) The squadron will be responsible for insuring that the enemy is denied any gaps. As flank guard for a moving force, the squadron will move with one troop deployed on line and the other troops in column. Tank platoons should be attached to the reconnaissance troops. Scouts from the lead troop will clear the zone between the boundary and the guarded force and tanks can provide security for the scouts. The squadron will establish a series of proposed blocking positions along the flank that may be occupied if there is expected enemy action. The lead troop will also screen to the flank. As the division moves forward, the troops will move along with it. As the distance from the start point increases, the density of vehicles available for observation will decrease as will the ability to mass.

In a friendly attack the enemy may counterattack the flank in an attempt to seal off the penetration. The counterattack forces will be main force units. If the penetration is by the division, the counterattack would come from an enemy tank battalion from a forward regiment or by a reinforced tank regiment from the division reserve. Although the shock of a counterattack by a tank battalion will be great, the squadron will have sufficient power to repel it from the blocking positions. If the counterattack comes from a motorized rifle regiment or the reinforced tank regiment employing heavy volume of suppressive fire, the squadron with its thin armor vehicles may not be able to mass enough anti-armor weapons to halt it even at 1:3. Fighting from prepared or preselected positions will provide some help, but it might not be enough. If unable to halt the enemy, the squadron would have to conduct a high risk delay, perhaps with minimal rearward maneuver space. The division commander will have to decide to reinforce the squadron or halt and conduct a hasty defense.

In a retrograde, the division will be concerned about an orderly rearward movement to more defensible terrain. The flank guard in this movement is more critical since the enemy has the initiative and will be seeking an assailable flank. It will be necessary to plan defense in depth from all blocking positions. It is probable that the division will not be able to commit additional forces to the flank guard and the squadron will be on its own. Priority of fires will probably go to the brigades and non organic indirect fires will be few. The squadron may be attacked by any size element from

reconnaissance patrol to motorized rifle regiment. The advangages of the squadron will be well prepared positions and the fact that the enemy will be "feeling" its way along the flanks trying to find a weak point. The light armor reconnaissance squadron will be marginally satisfactory as flank guard in this situation. Its combat power ratio will continually decrease as the amount of suppressive fires depletes its light armored vehicles. As main force units continue to increase pressure it is possible that the Soviets might also employ their attack helicopters. If this happens, the squadron will be in an almost hopeless situation.

When the division is halted or in a defense, it is possible for there to be a gap between it and the division on its flank. The squadron would occupy blocking positions and prepare a defense in depth. If the gap were wider than fifteen kilometers, the squadron would screen. The mission would be performed as described in the screen, delay or defend and its success would be the same as for those missions.

4. Movement to Contact/Zone Reconnaissance. Performing this mission the squadron moves with troops on line and the troops will have platoons on line. A tank platoon may be attached to each troop or the platoons may be held at squadron. In this configuration the squadron will be able to cover an area from seven to fifteen kilometers in width, depending on the terrain.

The platoons will maneuver scout squads with one vehicle providing overwatch for the other. The vehicles will use the terrain to avoid being observed from the front or flank. One vehicle provides

overwatch while the other moves to a vantage point. A scout dismounts before arrival at the vantage point and observes before bringing up the overwatch vehicle.

Platoons will move swiftly enough to accomplish the mission and not slow up the following force, but not so fast that it gives itself away. Platoons attempt to find enemy reconnaissance units before being detected to avoid direct fire engagement.

In an encounter, the Soviets will be either in a movement to contact or a "screen." In a mutual movement to contact, reconnaissance units will unavoidably meet. A U.S. cavalry squad will probably meet a Soviet patrol. Whoever reacts first will have an immediate advantage, however, the U.S. squad if reinforced by the platoon or troop will have an advantage. It will have discovered Soviet security elements, but may be unable to press its advantage as it will now encounter attached tank or infantry elements located in overwatch positions. If the U.S. platoon masses to overcome the enemy strongpoints it should be successful as it will still have numerical superiority. There will be a fight as both attempt to give advance guard and main force elements warning and time to react. If the U.S. platoon can swiftly overcome the Soviet platoon, the next element it will meet, will be an advance guard element. The advance guard of a division will be two or three motorized rifle battalions and the squadron will not be able to overcome this force. The squadron will have to conduct a hasty defense while the main force determines a course of action, and try to keep Soviet main force elements from mounting an organized operation.

If the Soviets are in the defense, U.S. platoons should be able to move undetected to Soviet reconnaissance unit strong points, but may not be able to force through them. If the attached tank platoon is kept at the troop but can be moved rapidly to help develop the situation, the cavalry can push through the enemy screen by its fire power superiority. It will then be able to locate main belt defense forces. The squadron should maintain contact and attempt to decieve the enemy, but must be careful not to engage these forces as the squadron is not powerful enough to overcome them.

This squadron has improved stealth and can even double the width of the zone over other units, but it has no immediate availability of tanks and a lack of immediate combat power. Main defense belts or main forces may not be found and the mission will be incomplete.

5. Economy of Force. The squadron can be employed as an economy of force unit in both the offense and the defense.

a. Offense. The squadron may be employed to attack in a narrow zone so the division may mass forces on the best axis of advance. This scenario would send the squadron to fix a regiment and keep it from hampering the main attack. The squadron would have to use its tank troop as the main attack force with scouts acting as mechanized infantry. Since the main attack would likely be made against the weakest enemy defense, the squadron would have to conduct a holding attack against a strong defense. This squadron does not have the combat power to overcome the two enemy battalions in the first defense belt. The light armor reconnaissance squadron is poorly equipped to conduct a limited objective attack with only

fifteen M-551s and it will be unable to utilize TOWs to their best advantage. The possible result is an unsecured flank of the main attack force that is vulnerable to counterattack.

The squadron may be employed to attack the enemy by fire without leaving its positions. The prepared positions of the enemy and the range limitations of the squadron's direct fire weapons will give this operation limited success. The enemy's policy of remaining in place will keep the squadron relatively safe from direct attack, but may not keep enemy forces from redeploying against the main attack.

b. Defense. In an economy of force defense, the light armor reconnaissance squadron would be able to occupy a brigade sector while the division massed forces against the main enemy attack. As described in the delay, the squadron would be able to fight from prepared positions against one and perhaps two enemy regiments.

HEAVY ARMOR CAVALRY SQUADRON

1. Introduction. The heavy armor cavalry squadron, in addition to deleting the air cavalry troop, has some other significant changes. Mortars are consolidated at the troop, and this decreases the platoon leader's span of control and coordination. The infantry squads are deleted. The tank section is increased to four MBTs from three M-551s or M-60A2s. The platoon leader now controls two sections of eight vehicles rather than four sections of nine vehicles.

2. Covering Force. The squadron will employed across the entire division front, attached to a corps level covering force, or

individual troops will be part of brigade covering force's.

a. Screen. The squadron will establish a series of listening or observation posts across the entire front. Mortars will be attached to platoons. Scouts will occupy the OP's and the tanks organic to the platoons will provide overwatch for the scouts. Each OP will have one tank as overwatch, or the tanks can be positioned more rearward for firing at maximum range. Tanks should not be employed independently of the scouts. Scout vehicle density across forty-five kilometers of terrain will be one scout vehicle per 1250 meters of terrain, or one squad of two scouts per 2300 meters. Except for mortars, fires will not be used except against reconnaissance units. Against a hasty attack by a motorized rifle regiment the stand-off capability is good, however, the limited density of vehicles per kilometer make it vulnerable. The commander must take some risks and split the squadron to cover the more dangerous avenues of approach.

Approaching enemy forces will be either reconnaissance patrols, advance guard, or regiments in a reconnaissance in force. The enemy will be moving as fast as possible in columns, reconnaissance patrols forward in an attempt to develop a hasty attack.

Spread across forty-five kilometers of terrain, the coverage will be thin and possibly limited to trafficable roads or trails that the enemy might be using. (Soviet reconnaissance patrols clear routes for regiments.) The squadron can adjust mortar and artillery fires without being detected. If the enemy reconnaissance unit attempts to find a gap or an exposed flank it should not be successful. If the following advance guard attempts to develop the situation, the

squadron should be able to delay or halt them until the division commander chooses a new course of action. If they try to develop the situation, they can be defeated.

b. Delay. The squadron will be best employed as one unit, but there will be great temptation for the division to attach troops to brigades. If the squadron is reinforced with artillery, the enemy could confuse it for a main battle area brigade. Proper positioning will enable it to defend in depth on each delay line and still provide for the orderly withdrawal of all elements. Mutually supporting weapons systems give it excellent firepower in all direct fire ranges. The available weapons systems, twelve tanks, six TOW scouts, six Dragon scouts, and three 4.2" mortars per troop gives in excellent combat power at ranges from 300 to 5500 meters. The organic tanks permit a mutually protective two tanks per two scouts balanced scout/tank section.

In the delay the squadron will be employed with scouts and tanks on line with positions in depth. At least two rearward delay positions will be selected and prepared as much as time allows. If the squadron has a sector of fifteen kilometers it can have one platoon per 1745 meters of frontage, and Soviet reconnaissance units will not be able to penetrate. The advance guard must then attempt to breakthrough. The advancing regiment with two battalions forward equates to about two enemy motorized rifle companies reinforced with tank platoons, against each troop. The Soviets can be expected to employ large amounts of suppressive fires. The heavier M-60A1 will be better prepared to survive these fires than the scout vehicles and

will have to provide them protection. Considering at least a 1:3 ratio and the available weapons systems the squadron will have an advantage. The squadron should be able to halt the advance guard, cause it to deploy and slow the movement of the first echelon. This will constitute a successful initia delay. It is highly doubtful that the squadron can halt a division attack but it should try, providing that it does not lose its ability to maneuver.

A delay at the scout/tank section level would be conducted in this manner: A TOW scout fires at maximum range and moves to another position covered by its tank. The tank fires and moves to another position covered by the TOW scout. The second tank fires and moves to a new position covered by the Dragon scout, then the second tank covers the movement of the Dragon scout. This will be repeated by the two scout/tank sections in each platoon. This fire and movement can be made both laterally and rearward.

As the division covering force, the squadron will not be powerful enough to face three lead regiments of three Soviet divisions. If not spread over more than fifteen kilometers of frontage it could delay two regiments using the 1:3 combat power ratio criteria. As part of the division covering force it will be able to delay the single regiment it should face. On a wide front an isolated troop could not delay a single regiment that is in mass or columns of companies, and the squadron might have to take risks in positioning and echeloning in order to avoid being overrun.

In extended frontage the high risk delay is a problem for this squadron. There is the possibility that the squadron could find

itself splintered if the scouts are not properly positioned, and platoons are not mutually supporting. The organic tanks in each platoon provide it the ability to fire and maneuver and should increase its survivability. Success will depend on the risks the division commander requires.

3. Flank Guard. The flank guard secures and if necessary, fights. In a friendly attack the squadron will move in column with the lead troop conducting a zone reconnaissance between the division boundary and the flank of the guarded force. The lead and following troops will also screen or occupy blocking positions along the flank. The OPs or blocking positions will all have mutually supporting weapons system. The density of vehicles for observation will decrease as the distance from the start point to the rear of the lead element increases. The division commander will have to realize that as the flank guard becomes extended, the mission may have to be downgraded to a screen, or additional forces allocated to it. If the enemy is weak, or a counterattack is not imminent, the squadron will have little trouble. If, however, the enemy counterattacks in strength, the squadron will not be able to defend over an extended frontage. It will be able to delay against one regiment provided the frontage remains less than thirty kilometers and the squadron can mass against the regiment. The squadron will conduct the flank guard on terrain that provides observation and defensive positions, but it is normally the only defensible terrain between the boundary and the main body. The ability to delay from a second position will be limited. If a counterattack comes from a motorized rifle regiment, or the reinforced

tank regiment even when employing a heavy volume of suppressive fire, the squadron will be able to defend or delay against it. Its ability is enhanced by the armor of the M-60A1s and its ability to utilize direct fire weapons at ranges from 300 to 3000 meters.

In a retrograde the division may not be able to reinforce the squadron unless the situation for the division becomes desperate. The squadron has some advantage with its large number of tanks and their survivability. The lack of stealth and detectability of the tanks will be a hindrance to fire and maneuver and may cause trouble for the light armor scout vehicles with them. If the enemy employs attack helicopters, the lack of stealth will be an additional burden for both tanks and scouts.

The squadron can defend in a sector up to fifteen kilometers against a reinforced motorized rifle regiment. Against two motorized rifle regiments the squadron can delay. The capabilities decrease as the strength of the enemy force or the width of the sector increases.

When the division is halted, or in a defense, it is possible that there is a gap between it and the division on its flank. It is also possible that the division or one of the divisions on its flanks is being pushed back and a gap is being created. The squadron could be employed to fill in a gap. The flank guard would occupy blocking positions if the gap were small and the squadron would defend or delay. If the gap was large, the squadron would screen.

4. Movement to Contact/Zone Reconnaissance. In this maneuver there is little change from present tactical doctrine except, that there is no infantry to secure the tanks and the mortars are

consolidated at troop level. Scouts will be employed on line with the tanks providing overwatch. Scouts will also provide overwatch within the squad.

Reconnaissance vehicles will be able to move undetected if they use terrain properly. Although the use of the terrain will prevent the M-60A1s from receiving direct and some indirect fires, they will be detected and subjected to indirect fire and hostile air. They will not be able to move with stealth. The enemy will determine that something is happening. The number of tanks might cause them to think it is a tank battalion provided the scouts move undetected, however, vehicle dispersion over a wide frontage may give the squadron away.

In a movement to contact by both friendly and enemy reconnaissance units, both employing tanks, either could be detected first. Whoever reacts first will gain some advantage, but "one-on-one" scout squad vs Soviet patrol, all the way to squadron vs Soviet reconnaissance battalion, the U.S. unit is superior.

If the Soviet reconnaissance battalion is followed by three regiments the squadron will have to dispose of the reconnaissance forces quickly and deploy into a hasty defense, prepared to delay rearward to the main body. The division commander must then take action with main body elements.

If the Soviets are deployed in a defense the reconnaissance battalion reinforced, will be deployed on strong points. They will fight to make the squadron deploy and cause the following main body to deploy. They may detect the movement of squadron tanks, but their strong points will be overwhelmed. On punching through the

reconnaissance forces the squadron will continue to press its movement to contact against any other security forces to try and determine the location of the main defense belt. It will be able to detect the location of security and main defense belt forces. The U.S. division will be facing two forward Soviet divisions with four regiments forward and two back, and an army reserve division in the third belt. The squadron should maintain contact and attempt to deceive the enemy, but must be careful not to become decisively engaged. At this point the squadron will have accomplished its mission.

5. Economy of Force. The squadron may be employed as an economy of force unit in both the offense and defense.

a. Offense. The squadron may be employed to conduct an attack in order to conserve forces for a main attack in another zone. If this squadron conducts a limited objective attack to tie down a motorized rifle regiment it will not reach a combat power ratio of 6:1. The squadron will be able to force back security forces forward of the first defense belt, but against the two reinforced battalions in the first belt, it will be halted. Without a risk of total defeat the squadron will not be able to keep the regiment engaged. There is also the risk that the second belt battalion will attack and force an assailable flank to the main attack force. If one enemy battalion or company could be isolated, the squadron might have limited success in penetrating and setting up a defense within the enemy area. This operation would be a risk as the squadron would have only achieved combat power equality and not superiority.

This squadron would be more able to attack by fire without leaving its positions because the heavier armored M-60A1s would be better able to fire from positions further forward. This operation still might not stop enemy forces from redeploying against the main attack.

b. Defense. An economy of force defense conducted in a brigade sector in which only light contact was expected would be a good mission for the squadron. The squadron could defend against one motorized regiment, and perhaps two, provided the frontage was not wider than ten to fifteen kilometers.

CURRENT TOE SQUADRON (MODIFIED)

1. Introduction. The current TOE squadron modifications designed to enhance its power are: (1) Consolidation of mortars at the troop level, (2) The full integration of the air cavalry troop into the squadron, (3) The aero-rifle platoon is eliminated. If there is a requirement to insert infantry by air the squads from the troops will be formed into platoons and inserted either by organic or division aircraft. (4) The aero scout and aero weapons platoons are integrated into three platoons of three OH-58 scouts and three AH-1 attack helicopters each. These platoons will be dedicated to a ground troop, but may fly missions for their troop or the squadron. The dedicated platoon insures that both ground and air elements have been trained together. Ground troop scouts can ride in the OH-58s as observers and report directly to platoon or troop. Eliminating the aero rifle platoon eliminates the requirement for five UH-1s and

the integration of the aero scouts and aero weapons eliminates the requirement for one OH-58. This releases six aircraft for division use and reduces the troop commanders span of control. (5) GRSs are consolidated under the squadron S-2 or the division CEWI battalion to facilitate information gathering. (6) Troop infantry squads will be trained both with their platoon and as consolidated platoons at troop level.

2. Covering Force. The squadron can be employed in a screen forward of the covering force or as part of the covering force.

a. Screen. The squadron will be employed in a series of LP/OPs. In forty-five kilometers of frontage the density of vehicles will be 1250 meters or 2300 meters per scout squad, air scouts will fill in gaps between ground vehicles. At night or in inclement weather, infantry, radar and other sensors may be used in place of the aircraft. Use of the infantry in the screen line increases the density of vehicles to one per 1000 meters. This force will be able to cover an extended frontage with virtually no gaps or blind spots and any enemy should be detected. Tanks will overwatch scout positions. Attack helicopters will be on the ground or standby either at the air cavalry troop FAARP or near the ground troop CP. If not used in the screen, infantry squads can secure scouts or tanks. Since the mission is one of warning and counter-reconnaissance the most valuable assets are the ground scout vehicles and air scouts. The air scouts should be used sparingly to insure continued availability and no more than one or two should be on station at a time. Detected enemy reconnaissance forces can be engaged by

mortars or artillery and within 3000 meters either by M-551s, TOW scouts, or TOW Cobras.

The enemy force will be reconnaissance units, the advance guard, or regiments in a reconnaissance in force. The enemy will be moving as fast as possible with reconnaissance units forward in an attempt to develop a hasty attack. Flying NOE, the air scouts should be able to detect enemy movement without detection. If the air scouts are detected and draw fire, the ground forces will have warning without having revealed their own positions and indirect fires can be called on the advancing enemy. The troop or the squadron has the option to keep the air scouts flying to determine enemy dispositions or save the assets and rely on the ground screen for further warning. The squadron is powerful enough to halt enemy reconnaissance forces and to cause the advance guard to deploy or maneuver in another direction. At this point the division commander will have to decide to withdraw the screen, escalate the mission to a delay or reinforce the squadron. If the mission is escalated, the squadron will have the power to delay or defend.

b. Delay. The squadron will be employed on line with positions in depth and at least two prepared subsequent delay positions. Dragon and TOW scouts will provide overwatch for each other and the tank section will be employed in platoon overwatch. Infantry squads with Dragons will protect the tanks. The air cavalry platoons should be held in either troop or squadron reserve with priority of employment established. If required to be employed with the troops, the air scouts will search for targets for both indirect fire weapons

and attack helicopters. The Cobras will remain in dispersed locations waiting for employment. When utilized, the air cavalry platoon will be employed in three squads of one OH-58 and one AH-1 each. The six TOWs, nine Dragons, nine M-551s, and three AH-1s provide the troop fair medium range direct fire capability and excellent long range direct fire capability. The three 4.2" mortars provide fair indirect fire support.

There are of course limitations to the availability of air assets, maintainance, adverse weather, night flying, and heavy anti-air fires. Night flying capabilities are increasing due to improved night vision devices, and the emphasis on non-illuminated night flying including NOE. There will be occasions, when the OH-58s can not fly in adverse weather conditions, such as high winds, even under risk conditions. Attack helicopters are more capable of adverse weather flying and it is feasible and sometimes desirable for the attack helicopters to fly missions independently. There will be only a few times when some aircraft can not be used, and on these occasions the squadron will deploy without them.

As the division covering force, the squadron will be able to conduct a marginal delay against the three advance guard regiments, provided the air assets are available, but at tremendous risk. As part of the division covering force, the squadron would face a forward regiment.

As the enemy reconnaissance units approached, they would be engaged first by indirect fire, then by TOW scouts. The TOW scouts would then maneuver under cover of the Dragon scouts and the M-551s.

As the advance guard began to press, the air cavalry platoons can be utilized to blunt the advance guard attack, and require the first echelon to deploy. To avoid an air battle, since the enemy can employ their own air assets, air cavalry can be held back, unless a breakthrough is imminent, or when an air battle is unlikely. The squadron should be able to stop reconnaissance groups or patrols, and with good positioning of anti-armor weapons the troop should be able to make the advance guard deploy and perhaps even halt. If the enemy advance guard attacks, battalion on troop, the ratio of combat power would be about 2:1 and the squadron should be able to halt the attack. If breakthrough were imminent, the air cavalry could provide stand-off to assist in halting the enemy or to assist in the withdrawal of the ground elements. If the advance guard can be halted the enemy first echelon would be forced to deploy and the squadron will face these regiments in a hasty attack. The squadron should try to stop them but will probably be unable to. In order to retain its freedom of maneuver or not hamper the movement to contact of the main body, it is vital that the squadron does not become decisively engaged.

The high risk delay is enhanced because the air cavalry platoons can screen forward of the troop, detect enemy reconnaissance units, and harass them. They can then go into reserve while the ground cavalry destroys the reconnaissance units. Later the air cavalry can move to detect the location of the advance guard, report and harass them until they make contact with the ground cavalry. As the main body approaches, the air cavalry will perform the same mission. As

the main body reaches TOW/Sheridan missile range, they will be fired on and caused to deploy or take heavy casualties. The air cavalry can fire stand-off while the ground cavalry withdraws to subsequent positions. There is risk in this approach, however, the mission may demand it.

3. Flank Guard. Flank guard missions will be performed by present doctrine with variations.

If the division is in the attack or movement to contact, the squadron will move in column with the lead troop conducting a zone reconnaissance between the division boundary and the flank of the moving force. The lead and following troops will screen or occupy blocking positions along the flank depending on the anticipated enemy situation. The air cavalry will be employed as a troop until contact is imminent and will be utilized to extend the guard in length and forward observation. As the movement progresses, the length of the flank becomes larger and the density of vehicles decreases. The use of the air cavalry increases the density of observation elements and direct fire weapons. By employing ground platoons on blocking positions and the air cavalry between the blocking positions and in overwatch, the squadron could at a combat power ratio of 1:3 temporarily halt and delay a division attack across a fifteen kilometer front. At night or inclement weather the attack helicopters could be used in an observation or an anti-armor role. If the aircraft can not be used, the flank guard will be performed in the normal manner and its capabilities will closely parallel those of the light armor reconnaissance squadron.

In a retrograde the division may not be able to reinforce the squadron unless the situation becomes desperate. The squadron may have to conduct a screen, defense, or high risk delay. When there is little defensible terrain on the flank or if its air assets are not available the squadron will be force to mass its combat power on the main avenues of approach and attempt to halt or delay the enemy. The status of the enemy attack will determine the forces that the squadron will face, but they could be as large as a division attempting to exploit. The squadron may arm all nine attack helicopters with TOW missiles. Utilizing the air cavalry and fighting on a narrow front the enemy division could be halted or slowed. Without the air cavalry its capability to defend or delay is decreased to one or perhaps two motorized rifle regiments. The squadron would have to take exceptional risks in order to protect the guarded force and avoid a collapse of the retrograde.

A flank guard for the division halted or in the defense would consist of blocking positions to close gaps between irregular battle lines of adjacent divisions or brigades within the division sector. A gap is dangerous and the Soviets will be constantly seeking one. The conduct of this mission would be the same as for a delay or defense.

4. Movement to Contact/Zone Reconnaissance. In this operation the opposing forces can be moving against each other or the division may be moving against a halted or defending enemy.

The squadron will be employed on line with troops and platoons on line. Scouts will move by squads with one vehicle providing

overwatch for the other, and the tanks providing overwatch for the scouts. The infantry squads will provide security for the tanks and can be used to assist in overcoming strong points. The squadron will place one air cavalry platoon OPCON to each troop. Air scouts with attack helicopters on stand-by will fly NOE forward of the troop to facilitate movement.

In a movement to contact by both enemy and friendly units, the first contact will be by air cavalry scouts and Soviet reconnaissance units. If the Soviets detect the air scouts they will either fire or evade and they will betray their positions. If the air scouts detect the enemy first, they will be able to adjust indirect fires and warn the ground troops of their presence. The ground cavalry can punch through the reconnaissance units and prepare to meet the advance guard battalions. Since the advance guard will also have been warned, it will be preparing for engagement. The two forces will meet at a ratio of about one Soviet battalion per cavalry troop. The squadron should go into a hasty defense since the Soviet battalions will have more ground combat power than the squadron. If the squadron is in a defense, the Soviet advance guard will not reach a ratio of 3:1 and the main body will have reaction time. If the Soviets are moving with forward regiments in column, the squadron will have to establish a hasty defense and prepare to delay rearward to the main body. The division commander will have to determine the next action.

In a movement to contact where the enemy is in a defense, the

squadron will move in the same manner but perhaps more slowly. The air cavalry can attempt to determine the locations of reconnaissance forces so that the squadron will not be canalized and can adjust indirect fires on strong points. The squadron will be able to push through reconnaissance force without being canalized and reach the enemy first echelon defense force, but will not have enough combat power to attempt a direct engagement. The squadron can maintain surveillance and employ indirect and direct fires when targets can be identified. It is possible, that the squadron can be used to deceive the enemy as to direction of the main attack. The Soviets will not leave their positions to engage the squadron, so that by maneuver the squadron can avoid direct engagement.

5. Economy of Force. In an economy of force the squadron can be utilized in either an offensive or defensive role.

a. Offense. If the squadron is assigned to attack a motorized rifle regiment in order to keep these forces from interfering with the main attack, the squadron would have to reorganize. The reorganization would form tank companies from the tank sections, and mechanized infantry companies from the scouts and infantry squads. If the enemy has an effective air defense umbrella, the air cavalry troop would have little value until the attack began and enemy air defenses were diminished. The aircraft would have to fly varied routes to attack and hold down enemy reserves. With the Soviet "stay in place" doctrine the squadron could try and isolate a battalion or a company. If the first belt were penetrated, the squadron could execute a hasty defense within the enemy area and fight

the regiment utilizing the air cavalry for ambush, harassment, and stand-off. Even against one battalion the best combat power ratio would be 3:1 and against a company 6:1, and this mission would be a high risk operation.

In an attack by fire, the M-55[illegible] and attack helicopters would have limited application and it would be unlikely that the squadron could keep a regiment held down for any length of tim[illegible]d keep it from deploying against the main attack.

b. Defense. In an economy of force defense this squadron would be employed in a brigade sector so that forces could be massed against more dangerous enemy attacks. The squadron could cover a sector of fifteen kilometers employing its anti-armor weapons and platoons on likely avenues of approach. The dedicated air cavalry platoon can cover forward and fill in gaps. Depending on the stage of the attack the squadron could be facing reconnaissance forces, advance guard regiment, or the first echelon regiments of a division. With its air cavalry, and well prepared positions, the squadron may have the combat power to halt two regiments. Without its air cavalry it can stop one, and perhaps two regiments if the main attack routes can be determined.

UNIT COMPARISONS

1. Introduction. In a comparison of the squadrons and their missions, certain factors will impact on the ability of each to perform a particular mission. The factors that I consider important will be listed at the beginning of each mission comparison, and the

squadrons will be evaluated on those factors. There may be other factors and it is possible that the factors could be weighted. All factors are important and I have weighted them equally. It is also possible to weight the possible frequency that a particular mission might be performed. Since it was determined that all of the missions are important, I have weighted all of them equally. A mission analysis will give the reader an indication of the capabilities of the squadron in each mission and therefore those that are more appropriate. The current TOE squadron (modified) has been evaluated with and without the availability of its air cavalry troop. If the air cavalry troop is placed under another control headquarters this evaluation will be valid. If some of the air assets are available, the grade of the squadron will rise with the percentage of available aircraft. The matrix ratings will indicate the placement of the squadron with the air cavalry troop available to the current squadron and without its availability.

2. Covering Force.

a. Screen. The essential factors in the screen are density of observation platforms, capability to escalate the mission to delay or defend, and stealth, (See Fig. 5-1). The light armor reconnaissance squadron has an increased number of scout elements and a higher density of vehicles and weapons systems per kilometer of terrain. The current TOE squadron (modified) and the heavy squadron have the same density of ground scouts per kilometer of terrain but the current squadron can increase density by utilizing infantry squads and air cavalry. The heavy squadron can only increase its density by

Fig. 5-1

SCREEN

Unit	Vehicle/ Weapons Systems Density	Capability to escalate the Mission	Stealth	Totals	Rank
Light Recon Squadron	2 (1)	3 (2)	2 (1)	7 (4)	2 (1)
Heavy Cavalry Squadron	3 (2)	2 (1)	3 (3)	8 (6)	3 (2)
Current TOE Squadron (Modified)	1	1	1	3	1
Current TOE Squadron (Modified)(-) Air Cavalry Troop	3 (2)	4 (3)	3 (2)	10 (7)	4 (3)

NOTES: 1. In rankings, 1 equals best, 4 worst.

2. Numbers in parentnesis indicate rankings when current TOE squadron (modified) is not included in the comparison.

utilizing its tanks. All three squadrons are capable of combating and defeating enemy reconnaissance elements. If the mission is changed to delay, the heavy squadron is better able to conduct combat operations because of its larger number of survivable weapons systems. The current squadron has stand-off capability and can echelon with its air cavalry. Stealth is essential in moving to and withdrawing from the screen line. In this movement the current squadron has air cavalry to clear routes to the positions and cover its withdrawal. The light armor squadron has more stealth than the heavy squadron because of its smaller and quieter vehicles.

b. Delay. The important factors are the density of anti-armor weapons and vehicles, the survivability of units, the capability to escalate the mission to high risk delay or defend, and the ability to mass fire power, (See Fig. 5-2). The light armor reconnaissance squadron has more vehicles to assist in echeloning, massing against a large enemy force, and expanding over wider terrain to deny gaps or unguarded flanks. It has more ground anti-armor weapons in the long range category and the vehicles have better stealth in which to maneuver without detection, but lacks heavy armor protection. The heavy armor cavalry squadron has the best ground anti-armor weapons systems in long, medium, and short ranges. Its heavier armored tanks provide increased survivability, a higher rate of fire, and a larger load of anti-armor ammunition. The lower density of vehicles and lack of stealth are a disadvantage. The current squadron (modified), with air cavalry and ability to employ a large number and variety of anti-armor weapons, is the most

Fig. 5-2

DELAY

Unit	Vehicle/ Weapons Systems Density	Surviv- ability	Ability to mass Systems	Capability to escalate the Mission	Stealth	Totals	Rank
Light Recon Squadron	2 (1)	3	2 (1)	3 (2)	2 (1)	12 (8)	3 (1)
Heavy Cavalry Squadron	3 (2)	1	3 (2)	2 (1)	3 (2)	12 (8)	3 (1)
Current TOE Squadron (Modified)	1	2	1	1	1	6	1
Current TOE Squadron (Modified)(-) Air Cavalry Troop	3 (2)	2	3 (2)	4 (3)	3 (2)	15 (11)	4 (3)

NOTES: 1. In rankings, 1 equals best, 4 worst.

2. Numbers in parenthesis indicate rankings when current TOE squadron (modified) is not included in the comparison.

powerful and flexible in its ability to conduct surveillance, and mass large numbers of anti-armor weapons on dangerous avenues of approach. Its survivability is more limited since all of its anti-armor weapons are mounted on light armored vehicles or aircraft. With the air cavalry troop the current squadron can delay a division, without it, it can delay one, and possibly two motorized rifle regiments. The non availability of the attack helicopters decreases its capability by over fifty percent. The heavy squadron can delay at least two motorized rifle regiments, and the light squadron, one regiment.

3. Flank Guard. The important elements in this comparison are the survivability of weapons systems, and weapons systems density, (See Fig. 5-3). The squadron must be prepared to guard over an extended flank, however, the critical area where the enemy will try and find an opening will be approximately fifteen kilometers in length. Extension of the flank beyond the critical fifteen kilometers should only require a screen. The terrain limitations of the flank guard area make it essential that the squadron halt enemy forces rather than delay or provide warning. Stealth will be less important. In a forward movement, the squadron will be following the rear of the lead elements of the main body, and in the retrograde the squadron will likely be in either visual or physical contact with the enemy. At the halt, stealth will only be important in maneuvering from one firing position to another. The light squadron has a higher density of vehicles and weapons available but they are all lightly armored. The heavy squadron has less vehicles but more of them are heavily armored and capable of close in fighting. The current squadron with its air

Fig. 5-3

FLANK GUARD

Unit	Vehicle/ Weapons Systems Density	Survivability	Totals	Rank
Light Recon Squadron	2 (1)	3	5 (4)	3 (2)
Heavy Cavalry Squadron	3 (2)	1	4 (3)	2 (1)
Current TOE Squadron (Modified)	1	2	3	1
Current TOE Squadron (Modified)(-) Air Cavalry Troop	3 (2)	2	5 (4)	3 (2)

NOTES: 1. In rankings, 1 equals best, 4 worst.

2. Numbers in parenthesis indicate rankings when current TOE squadron (modified) is not included in the comparison.

cavalry has an increased density of observation platforms and available weapons systems, but all of them are vulnerable. The air cavalry is capable of stand-off and assisting the ground vehicles in maneuver.

4. Movement to Contact/Zone Reconnaissance. In the movement to contact/zone reconnaissance, the important considerations are stealth, the ability to mass against enemy strong points, the ability to conduct a hasty defense, survivability, and the ability to conduct detailed reconnaissance, (See Fig. 5-4). All three squadrons are capable of detecting and defeating enemy reconnaissance units. They are capable of halting or delaying an enemy advance guard in a meeting engagement but unable to defeat it in a "one-on-one" situation. None of the squadrons are capable of attacking or defeating enemy first belt defense forces.

5. Economy of Force.

a. Offense. The important factors in this mission are the ability of weapons systems to place fire on enemy defenses, and the survivability of the weapons systems, (See Fig. 5-5). The light armor squadron does not have enough shock action and heavy armor to conduct more than a hasty attack. The current squadron has the ability to mass forces with its twenty-seven M-551s, mechanized infantry squads, and scouts, however, all of the ground vehicles are lightly armored. The air cavalry will not be able to provide any great assistance until the battle has begun. The heavy squadron has the greatest number of anti-armor weapons mounted in heavy armor to protect the scouts acting as mechanized infantry. None of these units can mass 6:1 combat power ratios against a battalion or larger force without reinforcement.

Fig. 5-4

MOVEMENT TO CONTACT/ZONE RECONNAISSANCE

Unit	Vehicle/ Weapons Systems Density	Stealth	Cbt. Power For a Hasty Defense	Survivability	Totals	Rank
Light Recon Squadron	2 (1)	2 (1)	3 (2)	3	10 (7)	3 (1)
Heavy Cavalry Squadron	3 (2)	3 (3)	2 (1)	1	9 (7)	2 (1)
Current TOE Squadron (Modified)	1	1	1	2	5	1
Current TOE Squadron (Modified)(-) Air Cavalry Troop	3 (2)	3 (2)	4 (3)	2	12 (9)	4 (3)

NOTES: 1. In rankings, 1 equals best, 4 worst.

2. Numbers in parenthesis indicate rankings when current TOE squadron (modified) is not included in the comparison.

Fig. 5-5

ECONOMY OF FORCE OFFENSE

Unit	Capability of Available Weapons	Survivability	Totals	Rank
Light Recon Squadron	3 (2)	3	6 (5)	4 (3)
Heavy Cavalry Squadron	1	1	2	1 (1)
Current TOE Squadron (Modified)	2	2	4	2
Current TOE Squadron (Modified)(-) Air Cavalry Troop	3 (2)	2	5 (4)	3 (2)

NOTES: 1. In rankings, 1 equals best, 4 worst.

2. Numbers in parenthesis indicate rankings when current TOE squadron (modified) is not included in the comparison.

In an attack by fire, the light armor reconnaissance squadron and the current squadron have limited ability to get close enough to the enemy to provide accurate fires on prepared positions. The heavy squadron can maneuver closer to the enemy with its heavier armor and provide a higher volume of direct f e.

b. Defense. In an economy of force defense, all three of the squadrons are formidable, however, the factors to be considered in this mission are the same as in the delay, (See Fig. 5-2).

6. Span of Control. This consideration was chosen for evaluation because of growing concern over the ability of the squadron commander, troop commanders, and platoon leaders to direct the employment and fires of all the elements and systems in the organization. In the light squadron the squadron commander controls four combat elements, the troop commanders four organic elements plus the tank platoon when attached, and the platoon leaders control one section of four squads. In the heavy squadron the commander controls three combat elements, the troop commanders four elements, and the platoon leaders one section of tanks and one section of scouts. The current squadron requires the commander to control four combat elements, the troop commanders four elements plus the air cavalry platoon when attached, the platoon leaders control a tank section, a scout section and an infantry squad. Configured as proposed, the heavy squadron has the smallest span of control followed by the light squadron and the current squadron (modified).

7. Figure 5-6 is a compilation and ranking of the three squadrons in the missions presented.

Fig. 5-6

COMPILATION OF RANKINGS

Unit	Screen	Delay	Flank Guard	Zone Recon/ Movement to Contact	Econ. of Force Off.	Econ. of Force Def.	Span of Control	Totals	Rank
Light Recon Squadron	2 (1)	3 (1)	3 (2)	3 (1)	4 (3)	3 (1)	2	20(11)	3(2)
Heavy Cavalry Squadron	3 (2)	3 (1)	2 (1)	2 (1)	1 (1)	2 (1)	1	14(8)	2(1)
Current TOE Squadron (Modified)	1	1	1	1	2	1	3	10	1
Current TOE Squadron (Modified)(-) Air Cavalry Troop	4 (3)	4 (3)	3 (2)	4 (3)	3 (2)	4 (3)	3	25(19)	4(3)

NOTES: 1. In rankings, 1 equals best, 4 worst.

2. Numbers in parenthesis indicate rankings when current TOE squadron (modified) is not included in the comparison.

FURTHER DISCUSSION

The results of the comparison were surprising. The current TOE squadron (modified) was the most powerful and versatile of the three, ranking first in every mission except the economy of force offense, and span of control. When the current squadron with its air cavalry troop was eliminated from consideration, the heavy squadron ranked first. During the discussion there was some question as to the validity of the economy of force mission as presented, and that it perhaps biased the over all rankings. The squadrons were compared without the economy of force offense, but the results remained the same.

Three other questions arose from the comparisons, the first was the impact of placing heavier armor in all three squadrons; the second was the impact of an air cavalry troop organic to the light and heavy squadrons; and the third was the impact of the increased span of control in the light and heavy squadrons after gaining the air cavalry troop.

In an attempt to answer the first question I made a comparison of the three available heavy cavalry vehicles and drew the following conclusions.

The M-551 is quieter and leaves less of a diesel signature than the M-60A1 and the M-60A2. It is capable of swimming and it is fast and has good maneuverability. It carries both a 152-mm conventional round and an optically guided missile. The missile is most effective at ranges from 1000 to 3000 meters and the conventional round is most effective at 800 to 1100 meters, which gives the M-551 good direct fire capability in the short and long ranges. The M-551 carries a

basic load of twenty-nine rounds (20 conventional and 9 missiles) which gives it less sustainability than the PT-76 and the T-62. It also carries less than the M-60A1 (63 rounds), and the M-60A2 which carries 13 missiles and 33 152-mm conventional rounds. The nine missiles in the M-551 may be expended quickly and this will severly limit its direct fire capability and ability to support scout elements. Its operating range of 370 miles is better than the 310 of the M-60A1 and the 280 miles of the M-60A2. The M-551 is lightly armored and more susceptible to both direct and indirect fires than the other vehicles. The fire control reliability of the M-551 is less than the M-60A1 and it suffers from frequent malfunctions. The conventional ammunition is not as reliable as the 105-mm round and frequently misfires. The missile is delicate. The automotive and armament maintainability of the vehicle is not as good as the M-60A1. The M-60A1 is heavier and more survivable. It is also more maintainable because of the high density of repair parts available in the division. The 105-mm round is less accurate at the 1100 to 3000 meter ranges but can kill enemy armor in excess of 3000 meters. There is also a difference in the time of flight of the missile that makes the M-551 and M-60A2 more vulnerable to enemy fires. The rate of fire for the M-60A1 is six rounds per minute compared to four rounds per minute for the M-551 and M-60A2.

The M-60A2 has some of the advantages of the M-60A1, automotive maintainability and heavier armor, but it does not swim like the M-551. It carries more ammunition (46 rounds), but only thirteen are missiles. It also has all of the fire control problems of the M-551. In selecting a heavy cavalry vehicle the choice would have to be the

M-60A1. The loss in stealth, inability to swim, and operating range differential is off-set by a greater amount of ammunition, rate of fire, survivability, maintainability, and reliability.

The three squadrons were revaluated with the M-60A1 as the heavy cavalry vehicle, with and without the economy of force offense mission included. The over all results remained the same. For both the current squadron and the light squadron the higher scores for survivability in the delay, flank guard and economy of force offense were off-set by lower scores for stealth in the screen, delay, and movement to contact/zone reconnaissance missions. Stealth can be an overriding consideration in some missions as the survivability of a system will depend on its ability to maneuver without detection. Once the battle starts, the ability of the system to survive indirect and direct fires is most important. In the delay and movement to contact/zone reconnaissance, survivability is important from the beginning. In moving to, occupying and withdrawing from a screen line without detection and decisive combat, stealth is essential.

The air cavalry troop provides the mobility differential that the ground squadron requires. The armored cavalry squadron is a unit that will frequently be employed with little indirect fire and close air support, yet is expected to be able to function by itself. The requirement to move over great distances to conduct flank security or to thicken a defense sector requires a great amount of mobility. The missions also require the squadron to provide warning, counter-reconnaissance, reconnaissance and fire power. The air cavalry increases the reconnaissance capability, provides for fast massing of anti-armor

weapons, and aids in echelonment of forces for a delay or active defense. The aircraft can locate the enemy, clear routes for the ground forces and constantly harass.

The employment of the air cavalry troop in support of the heavy and light squadrons would be the same as described for the current TOE squadron (modified).

The air cavalry troop increases the observation capability in the screen for both the heavy and light squadrons but the light squadron still has more observation elements. The stealth of both squadrons is improved but the light squadron loses some of its stealth when M-60A1s are substituted for M-551s, and the heavy squadron recieves more relative benefit. If one of the squadrons is required to fight from the screen position, the light squadron has more weapons systems, but 81 of the 96 systems are lightly armored. The heavy squadron has 81 weapons systems, and only 45 are lightly armored. The current squadron has only 45 lightly armored systems, but only 72 total systems.

In the delay, as in the screen, the heavy squadron has more survivable weapons systems than the light or current squadron. It is equal to the current squadron in stealth but has less than the light squadron. The air cavalry troop assists all three squadrons to move both laterally and rearward. The overriding factor in this comparison is that the heavy squadron has the advantage in its ability to stand and fight until the last possible moment.

The air cavalry troop aids all three squadrons in increasing the width and depth of the flank guard. It assists in halting the enemy with its stand-off capability and furnishes protection while the

ground vehicles move laterally and rearward. If forced to stand and fight in order to protect the flank of its parent division, the heavy squadron has superior capability with 21 more tanks than the light squadron and 9 more tanks than the current squadron.

The air cavalry troop affords all three squadrons an increase in their density of weapons and an increase in stealth. It also strengthens their ability to conduct a hasty defense. The heavy and current squadrons have tanks readily available to overcome enemy strong points. If the light squadron attaches tank platoons to its troops it loses some of its stealth, and the smaller number of tanks gives it less offensive capability. If required to conduct a hasty defense, the heavy squadron is the better of the three followed by the current and light squadrons.

In the economy of force offense, the heavy squadron is the most survivable and is more capable of bringing its heavy armor forward. With better direct fire suppression capability, the opportunity to utilize the air cavalry troop is improved.

The economy of force defense capabilities are the same as described for the delay.

The addition of the air cavalry troop increases the performance of the light and heavy squadrons in proportion to their original performances and the heavy armor cavalry squadron remained the best over all squadron, (See Fig. 5-7).

Adding the air cavalry troop to the light and heavy squadrons increases the span of control for both the troop and squadron commanders. The span of control becomes equal for all three squadrons.

Fig. 5-7

RECOMPILATION OF RANKINGS

(Each squadron with one air cavalry troop)

Unit	Screen	Delay	Flank Guard	Zone Recon/ Movement to Contact	Econ. of Force		Span of Control	Totals	Rank
					Off.	Def.			
Light Recon Squadron	1	2	2	1	3	2	1	12	2
Heavy Cavalry Squadron	2	1	1	1	1	1	1	8	1
Current TOE Squadron (Modified)	2	3	3	2	2	3	1	16	3

NOTE: In rankings, 1 equals best, 3 worst.

This chapter determined that the best organization to perform the missions required by its parent division is the heavy armor cavalry squadron with an air cavalry troop as configured for the current TOE squadron (modified).

CHAPTER 6

CONCLUSIONS AND RECOMMENDATION

CONCLUSIONS

Throughout history technicians and tacticians have sought to provide their armies with the "unfair advantage," the tactical or technical advantage that provides an army combat superiority. For over 2000 years that unfair advantage was cavalry. The battlefield has always been lethal relative to the available weapons systems and the challenge is to overcome the lethality. History has shown that when one army developed an advantage, another developed an equalizing or superior system. The Persians defeated the Greeks with cavalry and the Greeks developed a better cavalry to defeat the Persians. This story has repeated itself throughout history; the Carthaginians and the Romans, the French and the Russians, and the Germans and the Soviets. Cavalry has seen its finest times when a military leader has either innovated or improved on traditional employment. With the proliferation of aircraft and armored-tracked vehicles since World War I, no one army has superior technological mobility, only a numerical superiority.

History has shown that it is a mistake to place too much or too little reliance on one particular system, yet there are those who will maintain that a single system is an end in itself.

During this study the need for cavalry with its multi-mission

capacity was clearly established. Nothing really new emerged in the discussion of the required cavalry missions, only a reaffirmation of the traditional missions of reconnaissance, security, offense and defense.

General Gavin was not the first to realize the value of using aircraft for ground reconnaissance, but he seems to be one who recognized its value as sky cavalry in the modern sense.

It is not new for ground forces to utilize aircraft to kill enemy forces, but it is new for ground forces to utilize rotary wing aircraft that are capable of spending extended periods in the area of action, perform reconnaissance missions, and provide the direct fire capability of air cavalry.

It is a conclusion of this study that air cavalry provides the unfair technical and tactical advantage that makes the cavalry squadron superior to any other combat organization. The air cavalry troop provides the mobility differential that the ground squadron requires. This unit enhances the possibility of the squadron participating in its traditional role of exploitation and pursuit. The aircraft can locate the enemy, clear routes for the ground forces, and constantly harass. The attack helicopter is a fact of life. The AAH will eventually replace the AH-1, but there is at present no other choice of systems. The army has adopted the attack helicopter concept and the concept of air cavalry. The arguments in Chapter 4 did not resolve the problem of placement of the air cavalry troop but there was never a question of the need for this capability in performing cavalry missions. The arguments against making the troop organic to the squadron

is the concentration of limited and valuable assets in one unit. While it is my judgement that the air cavalry troop should remain organic to the squadron, that question lies outside of the scope of this study. The point is that a cavalry squadron operating in Europe or the Middle East must have air cavalry assets available to it whenever it is committed in performing cavalry missions for the division.

It is a conclusion of this study that the M-60A1 or a future main battle tank replacement is the best heavy cavalry vehicle with the necessary characteristics of fire power, shock, survivability, reliability and maintainability, and should be made part of the cavalry squadron TOE.

It is a conclusion of this study that the traditional cavalry missions of reconnaissance, security, offense and defense are still required missions.

It is a conclusion of this study that the heavy armor cavalry squadron is the best and most balanced medium and heavy ground cavalry organization that satisfies the multiple mission requirements of the division.

It is a conclusion of this study that the heavy armor cavalry squadron with the air cavalry troop as modified, provides the best balance of light, medium, and heavy cavalry that is required to give the cavalry squadron the unfair advantage of tactical mobility, firepower, shock, reliability, sustainability, and survivability.

RECOMMENDATION

That the armored and mechanized division armored cavalry squadron

TOE be changed to reflect the organization and equipment as shown in figure 6-1.

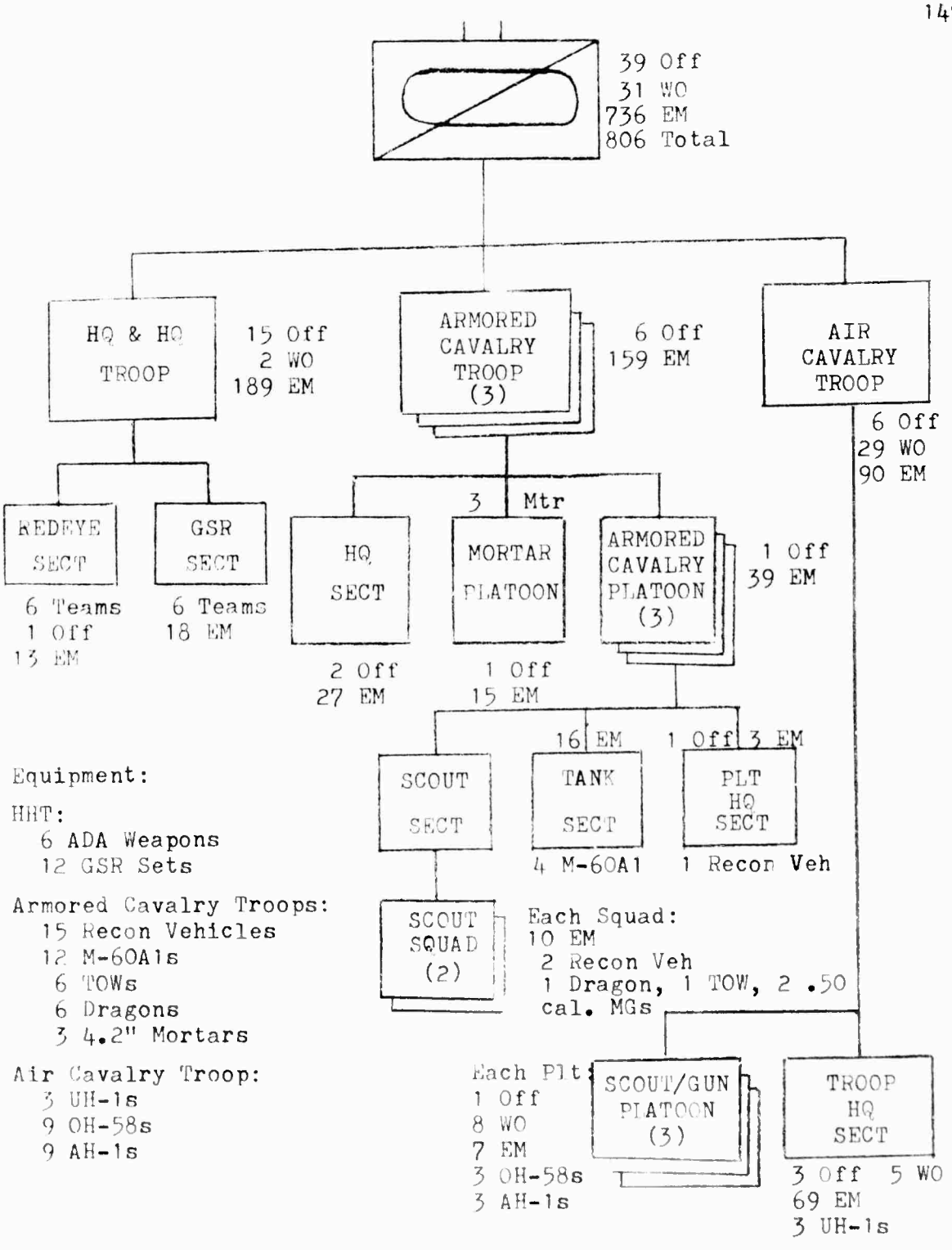


Fig. 6-1

Proposed Armored and Mechanized Infantry Division Armored Cavalry Squadron